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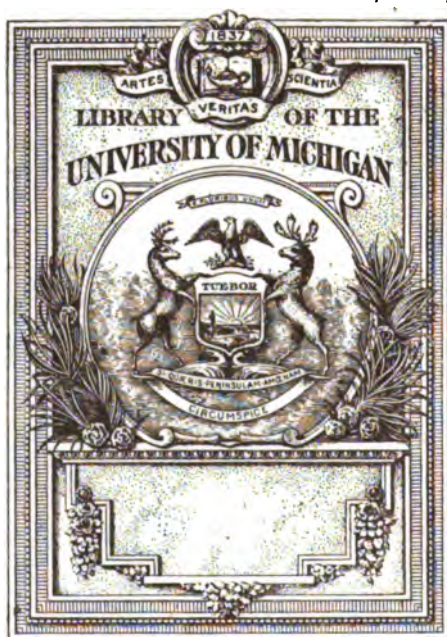
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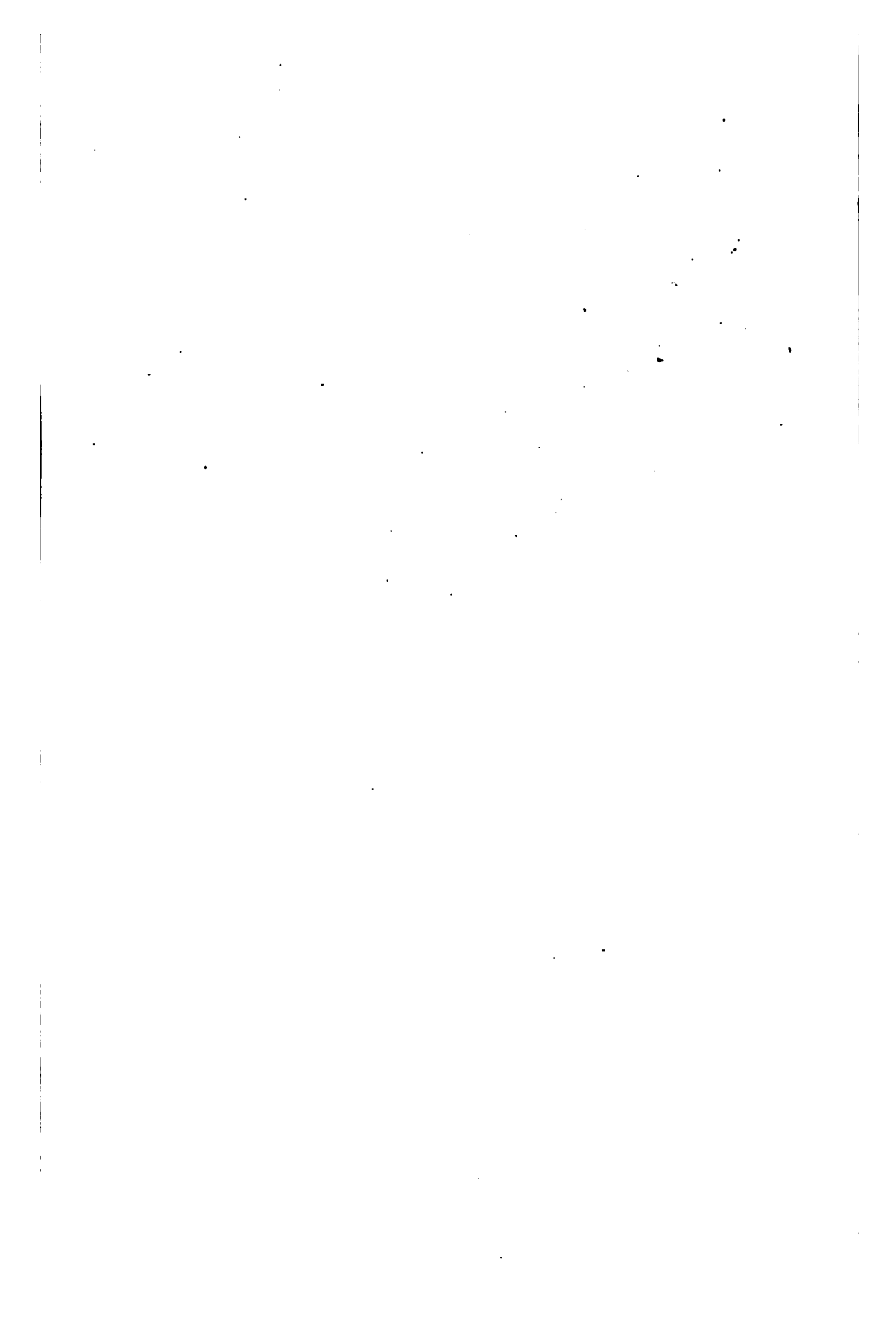
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THIRTY-FIFTH ANNUAL REPORT

OF THE

Indiana State Board  
of Health

For the Fiscal and Board Year Ending September 30, 1916

For the Statistical Year Ending December 31, 1916

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TO THE GOVERNOR

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20

**MEMBERS OF THE INDIANA STATE BOARD OF HEALTH.**

JAMES S. BOYERS, M. D., President ..... Decatur  
H. H. SUTTON, M. D., Vice President..... Aurora  
J. L. FREELAND, M. D..... Indianapolis  
CHAS. B. KERN, M. D..... Lafayette  
J. N. HURTY, M. D., Phar. D., Secretary..... Indianapolis

INDIANAPOLIS, November 30, 1916.

HON. SAMUEL M. RALSTON, *Governor of Indiana*:

Sir:—I have the honor to present herewith the Thirty-fifth Annual Report of the Indiana State Board of Health. The report, according to the law's commands, gives the transactions and expenditures for the fiscal year ending September 30, 1916; also complete report of the work of the two departments of the State Laboratory of Hygiene, which is under the control of the State Board.

The Statistical Report, which according to the law shall be for the calendar year, cannot be compiled until after the end of the calendar year. We shall, therefore, prepare said statistical report as soon after January 1st as it can be tabulated and analyzed; and with our present force and facilities it will take three, or perhaps four months, to complete this work.

Very respectfully,

J. N. HURTY,  
Secretary.

**THIRTY-FIFTH ANNUAL REPORT**  
**OF THE**  
**Indiana State Board of Health**

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HON. SAMUEL M. RALSTON, *Governor of Indiana*:

Sir:—The Indiana State Board of Health, in accordance with the command of the statutes, has the honor to present herewith its Thirty-fifth Annual Report, which is for the fiscal year ending September 30th, and for the statistical year ending December 31, 1916.

**THE FUTURE OF PREVENTIVE MEDICINE.**

There are certain 'coming events' in Public Health which are unmistakably 'casting their shadows before.' The search for the cure of disease is giving way to the discovery of the cause of disease and the means by which disease is transmitted. Knowledge of the cause leads to understanding of prevention and so we are establishing a new foundation and a new knowledge upon which the superstructure of a New Public Health is to be built.

We know now that disease, with its enormous toll of human life and prodigal waste of human efficiency, is very largely a preventable evil. At least four deaths in every ten might be prevented if the teachings of Hygiene were practically applied and universally heeded. If disease can be prevented, why not prevent it? If tuberculosis, typhoid, diphtheria, scarlet fever, smallpox and other communicable diseases can be prevented or even checked, why not at once advance this important civic work? Certainly the State acting through the governmental agencies it has created, has no duty superior to that of protecting the health and lives and increasing the physical efficiency of the people of the state. Public health is purchasable and may be bought at a reasonable price. The public is rapidly coming to realize this truth and to demand that measure of guidance, control and cooperation which will insure to them the largest degree of protection against preventable sickness and premature death and which intelligent government, wisely administered, alone can give.

To enable the people to do the things they can and should do and to do for them the things they cannot do but which should be done, is the purpose and duty of the State. If this means that the State shall assume more and more the responsibilities and opportunities of Preventive Medicine it is quite in line with the forecast of coming events and equally in line with good public policy.

It is for this great work, the prevention of disease, the conservation of life and the increase of efficiency and happiness that the State Board of Health asks for constructive legislation with adequate appropriations.

#### SCHOOL HYGIENE.

The era of better school buildings which began with the enactment of the Sanitary School House Law in 1911 is rapidly placing Indiana in the fore-front. Since 1911, more than \$12,000,000 has been invested in new and improved school buildings, every one of which conforms to the best modern knowledge of sanitation and equipment. The State Board of Health supervises the sanitary features of all school buildings and requires plans and specifications to be submitted to and approved by the Board before the same are adopted by school officials. No part of the work of the State Board of Health can be of greater educational value or of more permanent benefit to the people of the state than this. With the 600,000 school children of Indiana housed in comfortable, safe and sanitary school houses, the State will have made notable advance not only in public health but in all other basic elements of good citizenship.

#### MEDICAL INSPECTION AND HEALTH SUPERVISION OF SCHOOL CHILDREN.

With better school buildings has come a wide-spread demand for better protection against preventable disease through medical supervision of the health of school children. The Medical Inspection Law of 1911 has but served to stimulate this demand by calling attention to the great need for such supervision, while failing in its main purpose by not making medical inspection and health supervision a compulsory part of school administration.

The Legislature should amend the present Medical Inspection law to require medical inspection and health supervision in all the schools of the state and to authorize school officials to employ not only school physicians but nurses and dentists as

may be necessary to accomplish the whole beneficent purpose of the law. Such a momentous advance in public health and educational administration should not be made without due preparation of the many details necessary to insure its successful application, hence a compulsory medical inspection law should not become operative until at least two years subsequent to its enactment. If the present Legislature should enact a law, it should be made effective at the opening of the school year 1918-1919.

In the meantime a Division of Child and School Hygiene should be created in the State Board of Health to plan the details and supervise the institution of medical inspection and health supervision throughout the schools of the state according to the provisions of the law.

#### CHILD AND SCHOOL HYGIENE.

More than twenty (20) per cent of all deaths occurring annually in Indiana are in children under five (5) years of age, or an average of more than seven thousand (7,000) such deaths each year. Fully seventy-five (75) per cent of these deaths are due to ignorance of the most simple laws of hygiene and are, of course, preventable. A realization of this pathetic fact is responsible for the many and varied efforts being put forth in practically every community of the state to, in some degree, prevent this fearful waste of ignorance and neglect. Various agencies and organizations are seeking by various methods to instruct parents, especially mothers, in the intelligent care of babies and children. Different organizations use different methods, various types of nurses are employed to carry out special lines of work, the efforts themselves are usually short lived and always uncertain because dependent upon charity for support, there is no coordination of action and in most instances an utter failure to comprehend the real problem. The net result of such unguided community efforts has been confusion and unless properly directed must lead to confusion worse confounded, without in any degree approaching an intelligent solution of the problem.

Many children who survive the danger period of early childhood come into the schools, physically and mentally handicapped because of lack of proper home care. At present the school can do but little to overcome such handicaps because medical supervision is not provided and the school cannot be brought into intelligent cooperation with the home for the good of the child. These physically neglected children go to form the great number

of defectives and delinquents who are retarded in school work and who as a class furnish the human material that invites contagious and communicable disease. A recent survey of school conditions carried on through the county and city superintendents, disclosed the following facts for the school year 1915-1916, but which are doubtless equally true of any school year. Reports received from 75 superintendents show that no less than 3,000,000 days were lost from school on account of communicable disease. The average cost of maintaining the schools for each pupil each day was twenty three and one-half ( $23\frac{1}{2}$ ) cents. The loss to the state in money actually expended, because of absence from school from preventable sickness, was at least \$700,000. The same reports show that an average of ten (10) per cent of all school pupils are retarded one term or more in their school work and that most of this retardation is due to physical causes which for the most part are either remediable or preventable.

#### DIVISION OF CHILD AND SCHOOL HYGIENE.

A Division of Child and School Hygiene, properly organized should correlate, under intelligent state supervision, all the agencies within the state having to do with child welfare. It would be the work of such a Division to provide for the instruction of mothers in the proper care of babies. Baby care is no longer a matter of tradition but has become an applied science. There should be a state Supervising Nurse through whom the various nursing agencies, in so far as their work relates to the care of the child in the home and in the school, could be coordinated and made effective. The immediate duty of such a Division would be to provide the necessary rules, blanks forms and instructions for a state wide system of medical inspection and health supervision in the schools but aside from this, a State Division of Child and School Hygiene should become the arm of the state to "Save the Babies" and protect the school children of the state from the blight of sanitary ignorance and neglect. In the final analysis the State will be known for the strength and beauty of her children.

#### THE "ALL TIME" HEALTH OFFICER.

Public Health Administration makes progress only as it keeps pace with the development of scientific knowledge and the demands of enlightened public opinion. It has long been recognized by earnest health officials and is fast being realized by the



public generally that health service should be an all time service and that health officials should be required to devote their whole time and attention to public health work. The reasons why the present health officer system in Indiana does not and can not achieve results commensurate with present knowledge and needs, have been fully set forth in previous annual reports of the State Board of Health. These reasons briefly stated are as follows:

1. Every one of the 535 health officers of the State are engaged in other occupations or professions, in most cases in the practice of medicine, and serve as health officers only as a secondary employment. "No man can serve two masters."

2. No health officer can engage actively in the practice of medicine and at the same time secure the full cooperation of his brother physicians. Lacking this cooperation, public health work, in both its administrative and educational functions, will fail.

3. Health officers, engaged primarily in other occupations, frequently find their official duties in conflict with their personal and professional interests. In such cases it is but natural that the line of least resistance should be followed and that important and necessary public duties be neglected or left unperformed.

4. Because health officers serve only part time, they are, in all cases, poorly paid even for part time service. Because they are poorly paid, it is easy to excuse or justify the lack of service. Thus a vicious circle of inefficient service and meager support is perpetuated from which the public suffers without opportunity for recourse.

The Legislature should amend the present health law to provide for a trained and properly paid sanitarian to serve as health officer in each county and each city of 20,000 or more population, and to devote his entire time to this public service. Such officials should be chosen by local authority, from an eligible and qualified list approved by the State Board of Health; they should be given a tenure of office sufficient to permit of constructive work; they should be removed entirely from the influence of partisan politics, and should be given the financial support necessary to meet the health needs of the communities they serve. Such officials can then be fairly held responsible for the public health of the communities they serve and the state will take a great forward step in the important business of saving lives and preventing sickness.

The State Board of Health desires to serve the people of Indiana and the cause of Public Health, efficiently and well. To do this it must lead the way. We believe that the "Biggest business proposition before the people today is the business of the Public Health." To lead, we must serve. To serve, we must have wise laws, intelligent cooperation and adequate appropriation. We trust it will be your pleasure to receive this report in the spirit of helpfulness in which it is given and to advocate the recommendations contained therein.

Approved by the State Board of Health.

JAMES S. BOYERS, President.

H. H. SUTTON, Vice President.

J. L. FREELAND.

CHARLES B. KERN.

J. N. HURTY, Secretary.

## RECAPITULATION.

### *Appropriations.*

Secretary's Salary, specific.....	\$ 3,000.00
Clerk Vital Statistics Salary, specific.....	1,500.00
Mothers Baby Book, specific.....	4,000.00
Quarterly Board Meeting, specific.....	150.00
Appropriation State Board of Health Office.....	25,000.00
Appropriation Laboratory Hygiene Maintenance.....	10,000.00
Appropriation Laboratory Food and Drugs.....	20,000.00
Appropriation Laboratory Water.....	5,000.00
Appropriation Weights and Measures.....	5,000.00
Hydrophobia Fund, carried over and Collected.....	9,212.34
Cold Storage Fund collected.....	440.00
<b>Total.....</b>	<b>\$83,302.34</b>

### *Expended.*

Secretary's Salary, specific.....	\$3,000.00
Clerk of Vital Statistics Salary, specific.....	1,500.00
Mothers Baby Book, specific.....	3,995.38
Quarterly Board Meetings, specific.....	150.00
State Board of Health, Office Expense.....	24,936.29
Laboratory Hygiene Maintenance.....	9,944.37
Laboratory Food and Drugs.....	19,990.39
Laboratory Water Department.....	4,991.14
Laboratory Weights and Measures.....	4,982.18
Hydrophobia Fund.....	5,681.24
Cold Storage Fund.....	369.90
<b>Total expended.....</b>	<b>\$79,540.89</b>

Total Appropriations and Funds.....\$83,302.34

Total Expended.....79,540.89

Balance.....\$3,761.45

Carried over in Hydrophobia fund.....3,000.00

Total reverting to general fund.....\$761.45

## FINANCIAL STATEMENTS.

### OFFICE STATE BOARD OF HEALTH.

*Specific Appropriations for 1915-1916—*

Secretary's salary .....	\$3,000 00
Chief Clerk Vital Statistics.....	1,500 00
Baby Book.....	4,000 00
Total.....	\$8,500 00

*Expended—*

Secretary's salary .....	\$3,000 00
Chief Clerk Vital Statistics.....	1,500 00
Baby Book printing and postage.....	3,995 38
Reverting to General Fund.....	4 62
Total.....	\$8,500 00

### INDIANA STATE BOARD OF HEALTH.

*For Fiscal Year October 1, 1915, to September 30, 1916.*

1915.	
Oct. 4.	To Bryant & Son Transfer Co., Drays.. \$40 00
" 11.	To Harry Swain, services..... 18 00
" 15.	To Dr. Jas. S. Boyers, Board meeting.. 7 80
" 15.	To Dr. H. H. Sutton, board meeting and expense..... 13 20
" 15.	To Dr. Chas. B. Kern, board meeting and expense..... 48 20
" 28.	To Robt. E. Springsteen, postage stamps 150 00
" 31.	To Dr. W. F. King, salary..... 208 33
" 31.	To Jas. L. Anderson, salary..... 125 00
" 31.	To Ethel Hoffman, salary..... 70 00
" 31.	To Louise Lingenfelter, salary..... 70 00
" 31.	To Fannie Stevenson, salary..... 70 00
" 31.	To Sadye Slutzky, salary..... 70 00
" 31.	To Orpha M. McLaughlin, salary..... 70 00
" 31.	To Lucetta C. Lee, salary..... 65 00
" 31.	To Ethel Johnson, salary..... 55 00
" 31.	To Mrs. Elva Thompson, salary..... 65 00
" 31.	To Geo. Shea, salary..... 65 00
" 31.	To Ethel Roberts, salary..... 60 00
" 31.	To Walter D. Thurber, salary..... 10 00
Nov. 5.	To Ralph W. Abbett, merchandise.... 3 50
" 5.	To American Multigraph Co., merchandise..... 1 25
" 5.	To American Tent & Awning Co., merchandise..... 60 00

1915.		
Nov.	5. To Aquos District Water Co., merchandise.....	\$1 00
"	5. To Balke & Krauss Co., merchandise..	9 90
"	5. To W. H. Bass Photo Co., merchandise	6. 00
"	5. To W. B. Burford, merchandise.....	896 55
"	5. To Clark Typewriter & Supply Shop, Repairs.....	10 00
"	5. To Educational & Exhibition Co., merchandise.....	20 72
"	5. To Adams Express Co., service.....	14 22
"	5. To American Express Co., service.....	33 79
"	5. To Thos. C. Galbreath, books.....	3 09
"	5. To Holland Photo Studio, merchandise	12 92
"	5. To Indiana Electrotype Co., merchandise.....	7 40
"	5. To Indianapolis Calcium Light Co., merchandise.....	17 00
"	5. To Indiana Press Clipping Service, clippings.....	5 00
"	5. To Kipp Bros Co., merchandise.....	1 60
"	5. To Frank D. Loomis, service.....	6 00
"	5. To Geo. J. Mayer Co., merchandise....	50
"	5. To National Motion Pictures Co., Films and repairs.....	146 00
"	5. To Railroad Transfer Co., freight and drayage.....	9 37
"	5. To Remington Typewriter Co., Bol....	41 95
"	5. To Vonnegut Hardware Co., merchandise.....	1 70
"	5. To Western Union Telegraph Co., tolls	1 75
"	5. To Jas. L. Anderson, expense.....	70 65
"	5. To Dr. C. A. Carter, expense.....	2 98
"	30. To Dr. W. F. King, expense.....	41 66
"	30. To George Shea, expense.....	119 23
"	30. To Willis Shores Co., merchandise....	2 00
"	30. To Dr. W. F. King, salary.....	208 33
"	30. To J. L. Anderson, salary.....	125 00
"	30. To Ethel Hoffman, salary.....	70 00
"	30. To Louise Lingenfelter, salary.....	70 00
"	30. To Fannie Stevenson, salary.....	70 00
"	30. To Sadye Slutzky, salary.....	70 00
"	30. To Orpha M. McLaughlin, salary.....	70 00
"	30. To Lucetta C. Lee, salary.....	65 00
"	30. To Ethel Johnson, salary.....	55 00
"	30. To Mrs. Elva Thompson, salary.....	65 00
"	30. To Mr. Geo Shea, salary.....	65 00
"	30. To Ethel Roberts, salary.....	60 00
"	30. To Walter D. Thurber, salary.....	10 00

1915.

Dec.	4.	To American Press Association, merchandise.....	\$10 00
"	4.	To Aquos Distilled Water Co., merchandise.....	2 50
"	4.	To W. H. Bass Photo Co., merchandise.....	8 20
"	4.	To W. B. Burford, merchandise.....	502 98
"	4.	To Adams Express Co., service.....	2 40
"	4.	To Dr. C. A. Carter, expense.....	10 80
"	4.	To Typewriter & Supply Shop, repairs.....	5 00
"	4.	To The Chemical Engineer, subscription.....	2 00
"	4.	To Elbe File & Binder Co., merchandise.....	8 40
"	4.	To American Express Co., service.....	9 64
"	4.	To Wells Fargo Express Co., service.....	3 14
"	4.	To Fertig & Kevers, sign.....	3 00
"	4.	To Holland Photo Studio, plates.....	4 80
"	4.	To Indiana Electrotpe Co., merchandise.....	8 70
"	4.	To Indiana Press Clipping Service, Clippings.....	5 00
"	4.	To Indianapolis Telephone Co., tolls.....	4 65
"	4.	To Geo. J. Mayer Co., merchandise.....	70
"	4.	To Remington Typewriter Co., coupons.....	7 00
"	4.	To W. K. Stewart Co., books.....	4 00
"	4.	To The Surbey, subscription.....	3 00
"	4.	To W. A. Swift, photos.....	5 00
"	4.	To J. L. Anderson, expense.....	32 57
"	4.	To Dr. W. F. King, expense.....	35 80
"	4.	To George Shea, expense.....	143 50
"	4.	To Indianapolis Electric Supply Co., merchandise.....	17 67
"	4.	To Scherman Peabody, labor.....	17 50
"	4.	To Western Union Telegraph Co., tolls.....	2 11
"	31.	To Dr. W. F. King, salary.....	208 34
"	31.	To J. L. Anderson, salary.....	125 00
"	31.	To Ethel Hoffman, salary.....	70 00
"	31.	To Louise Lingenfelter, salary.....	70 00
"	31.	To Fannie Stevenson, salary.....	70 00
"	31.	To Sadye Slutsky, salary.....	70 00
"	31.	To Orpa McLaughlin, salary.....	70 00
"	31.	To Lucetta C. Lee, salary.....	65 00
"	31.	To Ethel Johnson, salary.....	55 00
"	31.	To Mrs. Elva Thompson, salary.....	65 00
"	31.	To Mabel Vogel, salary.....	50 00
Nov.	5.	To Indianapolis Telephone Co., rent and tolls.....	22 50
Dec.	31.	To Geo Shea, salary.....	65 00
"	31.	To Ethel Roberts, salary.....	60 00
"	31.	To Walter D. Thurber, salary.....	10 00

1915.			
Dec.	31.	To William Abetom, salary.....	\$2 00
"	9.	To R. E. Springsteen, P. M., postage stamps.....	150 00 -
"	22.	To Dr. J. N. Hurty, secretary, expense.....	114 03
Expense first quarter.....			<hr/> \$6,033 55

1916.			
Jan.	7.	To American Toilet Supply Co., laundry.....	\$6 55
"	7.	To Avos Distilled Water Co., merchandise.....	1 00
"	7.	To The Aetna Cabinet Co., merchandise.....	46 97
"	7.	To Barnes & Co., adder machine.....	110 00
"	7.	To Bee Hive Paper Box Co., merchandise.....	9 36
"	7.	To Wm. H. Bleok Co., merchandise....	65 00
"	7.	To W. B. Burford, merchandise.....	232 75
"	7.	To Central Union Telephone Co.....	1 35
"	7.	To American Express Co., service.....	2 98
"	7.	To Harris & Ewing, photos.....	4 00
"	7.	To Indianapolis Tent & Awning Co., labor.....	70
"	7.	To Kiger & Tomlinson, merchandise....	1 50
"	7.	To W. A. Lorentz, merchandise.....	5 00
"	7.	To Geo. J. Mayer & Co., merchandise..	3 75
"	7.	To W. S. Rankin, Treas., dues.....	10 00
"	7.	To John S. Spann & Co., rent.....	19 00
"	7.	To Underwood Typewriter Co., machine.....	90 38
"	7.	To Varney Electric Co., merchandise....	13 50
"	7.	To Western Union Telegraph Co., tolls..	80
"	7.	To Jas. L. Anderson, expense.....	13 10
"	7.	To Dr. W. F. King, expense.....	25 17
"	7.	To Geo Shea, expense.....	117 30
"	7.	To Richard White, expense.....	8 40
"	14.	To Dr. Jas. S. Boyers, board meeting..	8 00
"	14.	To Dr. Chas. B. Kern, board meeting..	2 60
"	31.	To Dr. W. F. King, salary.....	208 33
"	31.	To J. L. Anderson, salary.....	135 00
"	31.	To Ethel Hoffman, salary.....	70 00
"	31.	To Louise Lingenfelter, salary.....	60 00
"	31.	To Fannie Stevenson, salary.....	70 00
"	31.	To Sadye Slutzky, salary.....	70 00
"	31.	To Orpha M. McLaughlin, salary.....	70 00
"	31.	To Lucetta C. Lee, salary.....	65 00
"	31.	To Ethel Johnson, salary.....	55 00
"	31.	To Mabel Vogel, salary.....	50 00
"	31.	To William Abston, salary.....	2 00

1916.		
Jan.	21.	To R. E. Springsteen, postage stamps.. \$151 00
"	31.	To R. E. Springsteen, postage stamps.. 50 00
Feb.	4.	To American Medical Association, sub- scription..... 5 00
"	4.	To Aetna Cabinet Co., merchandise... 139 20
"	4.	To American Multigraph Sales Co., merchandise..... 1 00
"	4.	To Aquos Distilled Water Co., mer- chandise..... 1 00
"	4.	To Adams Express Co., service..... 50
"	4.	To W. B. Burford, merchandise..... 5 00
"	4.	To Receivers Central Union Telephone Co., tent and tolls..... 23 08
"	4.	To Holland Photo Co., merchandise.... 11 00
"	4.	To Indiana Electrotpe Co., merchan- dise..... 15 90
"	4.	To Indiana Press Clipping Service clippings..... 5 00
"	4.	To Indianapolis Calcium Light Co., merchandise..... 7 50
"	4.	To The H. Leiber Co., merchandise.... 7 00
"	4.	To Geo. J. Mayer Co., merchandise.... 1 00
"	4.	To Pettis Drygoods Co., merchandise.. 11 00
"	4.	To John S. Spann & Co., rent..... 19 00
"	4.	To W. K. Stewart Co., books..... 11 75
"	4.	To J. L. Anderson, expense..... 6 63
"	4.	To Dr. W. F. King, expense..... 13 96
"	4.	To Western Union Telegraph Co., tolls 3 71
"	4.	To American Genetic Association..... 2 00
"	29.	To Dr. W. F. King, salary..... 208 33
"	29.	To Jas. L. Anderson, salary..... 125 00
"	29.	To Ethel Hoffman, salary..... 70 00
"	29.	To Louise Lingenfelter, salary..... 70 00
"	29.	To Fannie Stevenson, salary..... 70 00
"	29.	To Sadye Slutzky, salary..... 70 00
"	29.	To Orpha McLaughlin, salary..... 70 00
"	29.	To Lucetta C. Lee, salary..... 65 00
"	29.	To Ethel Johnson, salary..... 55 00
"	29.	To Mabel Vogel, salary..... 50 00
"	29.	To William Abston, salary..... 2 00
Mar.	6.	To W. B. Burford, (Baby book) special merchandise..... 2,886 38
"	6.	To Jas L. Anderson, expense..... 13 90
"	6.	To Adams Express Co., service..... 35
"	6.	To American Medical Association, book 1 00
"	6.	To Aquos Distilled Water Co., merchan- dise..... 3 00
"	6.	To W. B. Burford, merchandise..... 125 83
"	6.	To Central Press Clipping service, clippings..... 5 00



1916.		
Mar.	6.	To Central Union Telephone Co., tolls \$4 20
"	6.	To Indianapolis Sanitary & Water Supply Association, dues..... 2 00
"	6.	To Dr. W. F. King, expense..... 29 48
"	6.	To The H. Leiber Co., merchandise.... 2 20
"	6.	To John S. Spann & Co., rent..... 19 00
"	6.	To W. K. Stewart Co., books and merchandise..... 130 95
"	6.	To Vonnegut Hardware Co., books and merchandise..... 1 60
"	14.	To R. E. Springsteen (baby book) postage stamps..... 209 00
"	31.	To Dr. W. F. King, salary..... 208 34
"	31.	To Jas. L. Anderson, salary..... 125 00
"	31.	To Ethel Hoffman, salary..... 70 00
"	31.	To Louise Lingenfelter, salary..... 70 00
"	31.	To Fannie Stevenson, salary..... 70 00
"	31.	To Sadye Slutzky, salary..... 70 00
"	31.	To Orpha M. McLaughlin, salary..... 70 00
"	31.	To Lucetta C. Lee, salary..... 65 00
"	31.	To Ethel Johnson, salary..... 55 00
"	31.	To Mabel Vogel, salary..... 50 00
"	31.	To William Abston, salary..... 2 00
		<hr/>
Expense second quarter.....		\$7,297 98
Apr.	5.	To American Multigraph Sales Co., merchandise..... \$2 00
"	5.	To American Toilet Supply Co., laundry 8 55
"	5.	To Aquos Distilled Water Co., merchandise..... 8 50
"	5.	To American School Hygiene Association, dues..... 3 00
"	5.	To W. H. Bass Photo Co., merchandise 10 40
"	5.	To W. B. Burford, merchandise..... 129 92
"	5.	To Central Press Clipping Service, clippings..... 5 00
"	5.	To E. H. Collins, merchandise..... 5 00
"	5.	To Central Union Telephone Co., rent and tolls..... 20 92
"	5.	To Adams Express Co., service..... 1 97
"	5.	To American Express Co., service..... 69
"	5.	To Fort Wayne Printing Co., merchandise..... 75 94
"	5.	To Fulton Office Furniture Co., merchandise..... 17 00
"	5.	To E. J. Gausephol & Co., merchandise 12 00
"	5.	To The Guide Publishing Co., subscription..... 2 00

1916.		
Apr.	5.	To Holland Photo Co., merchandise.... \$5 60
"	5.	To Individual Drinking Cup Co., merchandise..... 10 20
"	5.	To Journal Medical Research, subscription..... 4 00
"	5.	To Dr. W. F. King, expense..... 35 03
"	5.	To The Laucet-Clinic Publishing Co., subscription..... 3 00
"	5.	To The H. Lieber Co., merchandise.... 2 25
"	5.	To John S. Spann & Co., rent..... 19 00
"	5.	To W. K. Stewart Co., books..... 16 10
"	5.	To The Tabulating Machine Co., merchandise..... 130 00
"	5.	To R. R. Transfer Co., freight and drayage..... 13 73
"	5.	To Jas. L. Anderson, expense..... 30 24
"	5.	To Dr. J. S. Boyers, exp., board meeting 7 65
"	5.	To H. H. Sutton, exp., board meeting.. 5 10
"	5.	To Dr. Chas. B. Kern, exp., board meeting..... 14 30
"	5.	To Dr. J. N. Hurty, expense..... 138 93
"	19.	To R. E. Springsteen, (baby book) postage stamps..... 200 00
"	30.	To Dr. W. F. King, salary..... 208 33
"	30.	To Dr. H. H. Mitchell, salary..... 166 66
"	30.	To Jas. L. Anderson, salary..... 125 00
"	30.	To Ethel Hoffman, salary..... 70 00
"	30.	To Louise Lingenfelter, salary..... 70 00
"	30.	To Fannie Stevenson, salary..... 70 00
"	30.	To Sadye Slutzky, salary..... 70 00
"	30.	To Orpha M. McLaughlin, salary..... 70 00
"	30.	To Lucetta C. Lee, salary..... 65 00
"	30.	To Ethel Johnson, salary..... 55 00
"	30.	To Mabel Vogel, salary..... 50 00
"	30.	To Mrs. H. B. O'Brien, salary..... 25 00
"	30.	To Wm. Abston, salary..... 2 00
May	5.	To The Atena Cabinet Co., labor..... 5 00
"	5.	To American Medical Publishing Co., subscription..... 1 00
"	5.	To American Medical Association, dictionary..... 8 00
"	5.	To American Multigraph Sales Co., merchandise..... 1 50
"	5.	To Aquos Distilled Water Co., merchandise..... 4 00
"	5.	To Barnes & Co., merchandise..... 52 08
"	5.	To W. B. Burford, merchandise..... 697 15
"	5.	To Central Press Clipping Service, clippings..... 5 00

1916.			
May	5.	To Central Union Telephone Co., rent and tolls.....	\$4 20
"	5.	To Educational Exhibition Co., merchandise.....	60 87
"	5.	To American Express Co., service.....	2 52
"	5.	To Wells Fargo Co., service.....	1 40
"	5.	To Fort Wayne Printing Co., merchandise.....	75 01
"	5.	To E. J. Gausepohl & Co., merchandise	4 59
"	5.	To Holland Photo Studio, merchandise	7 60
"	5.	To Indianapolis Tent & Awning Co., merchandise.....	17 50
"	5.	To Kiger & Co., merchandise.....	1 25
"	5.	To The H. Leiber Co., merchandise....	1 65
"	5.	To Dr. H. H. Mitchell, expense.....	30 72
"	5.	To Montague Mailing Machinery Co., merchandise.....	150 02
"	5.	To W. K. Stewart Co., books.....	8 80
"	5.	To Western Union Telegraph Co., tolls.	2 18
"	5.	To Dr. W. F. King, expense.....	40 70
"	5.	To Jas. L. Anderson, expense.....	28 08
"	5.	To Dr. Jas. S. Boyers, H. O. Conf. & expense.....	30 55
"	5.	To Dr. H. H. Sutton, H. O. Conf. and expense.....	31 40
"	5.	To Dr. J. L. Freeland, H. O. Conf. and expense.....	20 00
"	5.	To Dr. Chas. B. Kern, H. O. Conf. and expense.....	26 40
"	5.	To Error Voucher No. 9965 (Tab. Mach. Co.).....	84
"	15.	To W. B. Burford, merchandise.....	40 00
"	15.	To Prof. Lucius P. Brown, services H. O. school.....	75 00
"	15.	To Dr. Fletcher Gardner, services H. O. school.....	20 00
"	15.	To Dr. Chas. E. North, services H. O. school.....	85 00
"	15.	To Otis Green, merchandise.....	5 00
"	15.	To Indianapolis Calcium Light Co., services.....	30 00
"	15.	To John S. Spann & Co., rent.....	19 00
"	15.	To Underwood Typewriter Co., merchandise.....	75
"	15.	To Jas. L. Anderson, expense.....	41 50
"	22.	To Henry Dellinger, service.....	25 00
"	22.	To Indianapolis Calcium Light Co., merchandise and service.....	49 50
"	24.	To R. E. Springsteen P. M. (Baby book Fund) postage stamps.....	150 00

1916.			
May	21.	To Dr. W. F. King, salary .....	\$208 33
"	31.	To Dr. H. H. Mitchell, salary .....	166 67
"	31.	To Jas. L. Anderson, salary .....	125 00
"	31.	To Ethel Hoffman, salary .....	70 00
"	31.	To Louise Lingenfelter, salary .....	70 00
"	31.	To Fannie Stevenson, salary .....	70 00
"	31.	To Sadye Slutzky, salary .....	70 00
"	31.	To Orpha M. McLaughlin, salary .....	70 00
"	31.	To Lucetta C. Anderson, salary .....	65 00
"	31.	To Ethel Johnson, salary .....	55 00
"	31.	To Mabel Vogel, salary .....	50 00
"	31.	To Mrs. H. B. O'Brien, salary .....	50 00
"	31.	To Wm. Abston, salary .....	2 00
June	7.	To Jas. L. Anderson, expense .....	13 77
"	7.	To American Multigraph Sales Co., merchandise .....	1 70
"	7.	To Mrs. Albion Fellows Bacon, services .....	20 00
"	7.	To Balke & Krauss Co., merchandise .....	26 58
"	7.	To Dr. Jas. S. Boyers, expense .....	61 65
"	7.	To W. B. Burford, merchandise .....	128 47
"	7.	To Central Union Telephone Co., tolls .....	3 85
"	7.	To Central Press Clipping Service, clippings .....	5 00
"	7.	To Centennial Charities Exhibit Com., expense .....	15 00
"	7.	To Louis Derr, merchandise .....	18 40
"	7.	To Adams Express Co., service .....	2 73
"	7.	American Express Co., service .....	2 12
"	7.	To Wells Fargo & Co., service .....	2 47
"	7.	To Fertig & Kevers, merchandise .....	21 25
"	7.	To Fort Wayne Printing Co., merchan- dise .....	69 47
"	7.	To Dr. Chas. B. Kern, expense .....	69 10
"	7.	To W. F. King, expense .....	21 18
"	7.	To Jas. R. Kinney, labor and material .....	6 85
"	7.	To The H. Lieber Co., merchandise .....	1 15
"	7.	To C. P. Lesh Paper Co., merchandise .....	474 39
"	7.	To Dr. H. H. Mitchell, expense .....	22 65
"	7.	To National Association, Study and prevention T. B. ....	5 00
"	7.	To National Motion Picture Co., mer- chandise .....	55 00
"	7.	To Railroad Transfer Co., freight and drayage .....	13 49
"	7.	To John S. Spann & Co., rent .....	19 00
"	7.	To W. K. Stewart Co., merchandise .....	2 00
"	7.	To Western Union Telegraph Co., tolls .....	1 31
"	7.	To The Tabulating Machine Co., mer- chandise .....	50 00

1916.			
June	21.	To R. E. Springsteen, P. M., (Baby book fund) postage stamps . . . . .	\$200 00
"	30.	To Dr. W. F. King, salary . . . . .	208 34
"	30.	To H. H. Mitchell, salary . . . . .	166 67
"	30.	To Jas. L. Anderson, salary . . . . .	125 00
"	30.	To Ethel Hoffman, salary . . . . .	70 00
"	30.	To Louise Lingenfelter, salary . . . . .	70 00
"	30.	To Fannie Stevenson, salary . . . . .	70 00
"	30.	To Sadye Slutzky, salary . . . . .	70 00
"	30.	To Orpha M. McLaughlin, salary . . . . .	70 00
"	30.	To Lucetta C. Anderson, salary . . . . .	65 00
"	30.	To Ethel Johnson, salary . . . . .	55 00
"	30.	To Mabel Vogel, salary . . . . .	50 00
"	30.	To Mrs. H. B. O'Brien, salary . . . . .	50 00
"	30.	To William Abston, salary . . . . .	2 00
July	7.	To Jas. L. Anderson, expense . . . . .	7 32
"	7.	To American Multigraph Sales Co., merchandise . . . . .	8 00
"	7.	To American Toilet Supply Co., laundry . . . . .	8 55
"	7.	To W. B. Burford, merchandise . . . . .	168 36
"	7.	To Central Press Clipping Service, clippings . . . . .	5 00
"	7.	To Central Union Telephone Co., rent and tolls . . . . .	23 87
"	7.	To Adams Express Co., service . . . . .	4 38
"	7.	To American Express Co., service . . . . .	2 03
"	7.	To Wells-Fargo & Co., express service . . . . .	55
"	7.	To E. J. Gausepohl & Co., merchandise . . . . .	4 00
"	7.	To Dr. J. N. Hurty, expense . . . . .	202 98
"	7.	To Dr. W. F. King, expense . . . . .	15 20
"	7.	To H. Leiber Co., merchandise . . . . .	3 75
"	7.	To Dr. H. H. Mitchell, expense . . . . .	35 30
"	7.	To Sentinel Printing Co., merchandise . . . . .	9 00
"	7.	To The Tabulating Machine Co., merchandise . . . . .	43 00
"	7.	To Dr. Carl G. Viehe, services . . . . .	20 00
"	7.	To Western Telegraph Co., tolls . . . . .	3 77
"	7.	To Jas. S. Boyers, expense . . . . .	30 05
"	7.	To H. H. Sutton, expense . . . . .	36 60
"	7.	To Dr. Chas. B. Kern, expense . . . . .	3 20
Expense third quarter . . . . .			\$7,958 19
July	25.	To R. E. Springsteen, postage stamps . . . . .	\$110 00
"	31.	To Dr. W. F. King, salary . . . . .	208 33
"	31.	To Dr. H. H. Mitchell, salary . . . . .	166 66
"	31.	To Jas. L. Anderson, salary . . . . .	125 00
"	31.	To Ethel Hoffman, salary . . . . .	70 00
"	31.	To Louise Lingenfelter, salary . . . . .	70 00

1916.

July	31.	To Fannie Stevenson, salary.....	\$70 00
"	31.	To Sadye Slutzky, salary.....	70 00
"	31.	To Orpha M. McLaughlin, salary.....	70 00
"	31.	To Lucetta C. Anderson, salary.....	65 00
"	31.	To Ethel Johnson, salary.....	55 00
"	31.	To Mabel Vogel, salary.....	50 00
"	31.	To Mrs. H. B. O'Brien, salary.....	50 00
"	31.	To William Abston, salary.....	2 00
Aug.	7.	To Aquos Distilled Water Co., merchan- dise.....	6 50
"	7.	To Barnes & Co., merchandise.....	1 21
"	7.	To Wm. H. Block Co., merchandise....	25 74
"	7.	To Wm. B. Burford, merchandise.....	80 15
"	7.	To Crescent Paper Co., merchandise...	9 50
"	7.	To Fertig & Kevers, signs.....	2 50
"	7.	To Fort Wayne Printing Co., merchan- dise.....	101 99
"	7.	To Central Union Telephone Co., tolls..	3 10
"	7.	To Adams Express Co., service.....	25
"	7.	To American Express Co., (error voucher 13015).....	25
"	7.	To Health Pub. Co., circulars.....	15 00
"	7.	To Indianapolis Calcium Light Co., repairs.....	20 00
"	7.	To Railroad Transfer Co., Freight and drayage.....	5 32
"	7.	To The Tabulating Machine Co., freight	4 10
"	7.	To Western Union Telegraph Co., tolls	3 40
"	7.	To James L. Anderson, expense.....	8 32
"	7.	To Dr. W. F. King, expense.....	75 95
"	7.	To Dr. H. H. Mitchell, expense.....	29 20
"	7.	To C. L. Hutchens, expense.....	3 33
"	7.	To Richard White, expense.....	3 30
"	7.	To Dr. Jas. S. Boyers, (error voucher 13015).....	5 00
"	25.	To R. E. Springsteen, P. M. postage stamps.....	200 00
"	31.	To Dr. W. F. King, salary.....	208 33
"	31.	To Dr. H. H. Mitchell, salary.....	166 67
"	31.	To Jas. L. Anderson, salary.....	125 00
"	31.	To Ethel Hoffman, salary.....	70 00
"	31.	To Louise Lingenfelter, salary.....	70 00
"	31.	To Fannie Stevenson, salary.....	70 00
"	31.	To Sadye Slutzky, salary.....	70 00
"	31.	To Orpha McLaughlin, salary.....	70 00
"	31.	To Lucetta Anderson, salary.....	65 00
"	31.	To Ethel Johnson, salary.....	55 00
"	31.	To Mabel Vogel, salary.....	50 00
"	31.	To Mrs. H. B. O'Brien, salary.....	50 00
"	31.	To William Abston, salary.....	2 00

1916.			
Sept.	8.	To Jas. L. Anderson, expense.....	\$13 87
"	8.	To Dr. W. F. King, expense.....	60 16
"	8.	To Dr. H. H. Mitchell, expense.....	95 37
"	8.	To American Multigraph Sales Co., merchandise.....	19 50
"	8.	To Aquos Distilled Water Co., merchandise.....	4 50
"	8.	To W. B. Burford, merchandise.....	186 41
"	8.	To Central Press Clipping Service, clippings.....	10 00
"	8.	To Central Union Telephone Co., tolls.....	3 75
"	8.	To Adams Express Co., service.....	90
"	8.	To American Express Co., service.....	2 26
"	8.	To Fertig & Kevers, merchandise.....	5 00
"	8.	To Fort Wayne Printing Co., merchandise.....	65 97
"	8.	To The H. Leiber Co., merchandise....	42
"	8.	To Remington Typewriter Co., merchandise.....	7 75
"	8.	To The Sanborn Electric Co., merchandise.....	22 25
"	8.	To John S. Spann & Co., Three months rent.....	57 00
"	8.	To W. K. Stewart Co., book.....	5 00
"	8.	To Varney Electric Co., merchandise..	20 25
"	8.	To Western Union Telegraph Co., tolls.....	4 78
"	23.	To R. E. Springsteen, (Baby book) postage stamps.....	150 00
"	23.	To Miss Ethel Johnson, salary.....	55 00
"	28.	To Fort Wayne Printing Co., merchandise.....	96 78
"	28.	To Dr. W. F. King, salary.....	208 34
"	28.	To Dr. H. H. Mitchell, salary.....	166 67
"	28.	To Jas. L. Anderson, salary.....	125 00
"	28.	To Ethel Hoffman, salary.....	70 00
"	28.	To Louise Lingenfelter, salary.....	70 00
"	28.	To Fannie Stevenson, salary.....	70 00
"	28.	To Sadye Slutzky, salary.....	70 00
"	28.	To Orpha McLaughlin, salary.....	70 00
"	28.	To Lucetta C. Anderson, salary.....	70 00
"	28.	To Mabel Vogel, salary.....	60 00
"	28.	To Lillie Brooks, salary.....	30 00
"	27.	To Wm. Abston, salary.....	2 00
"	30.	To Jas. L. Anderson, expense.....	16 67
"	30.	To American Toilet Supply Co., laundry.....	8 55
"	30.	To American School Hygiene Association, dues.....	3 00
"	30.	To Aquos Distilled Water Co., merchandise.....	3 50
"	30.	To Wm. H. Armstrong Co., merchandise.....	123 25

1916.		
Sept.	30.	To American Medical Association, merchandise..... \$96 40
"	30.	To American Water Works Association, circulars..... 17 50
"	30.	To W. B. Burford, merchandise..... 467 54
"	30.	To Dr. C. A. Carter, expense..... 17 80
"	30.	To Central Union Telephone Co., tolls 4 71
"	30.	To Educational Exhibition Co., merchandise..... 351 75
"	30.	To Fort Wayne Printing Co., merchandise..... 412 72
"	30.	To The Francis Pharmacy Co., merchandise..... 4 25
"	30.	To Fulton Office Furniture Co., merchandise..... 10 22
"	30.	To E. J. Gausepohl & Co., merchandise 5 50
"	30.	To The C. B. Howard Co., merchandise 83 60
"	30.	To The Journal Medical Research, subscription..... 4 00
"	30.	To Dr. Charles B. Kern, services..... 3 20
"	30.	To The H. Lieber Co., merchandise..... 213 75
"	30.	To L. E. Morrison & Co., merchandise 12 50
"	30.	To Nat'l. Motion Picture Co., films ... 245 00
"	30.	To Pittman Moore Co., merchandise.. 134 01
"	30.	To Railroad Transfer Co., freight and Drayage..... 4 49
"	30.	To Royal Typewriter Co., merchandise 32 50
"	30.	To The Sanborn Electric Co., merchandise..... 45 00
"	30.	To John S. Spann & Co., rent..... 19 00
"	30.	To W. K. Stewart Co., merchandise.... 249 10
"	30.	To The Taylor Carpet Co., merchandise 85 80
"	30.	To A. J. Watt, merchandise..... 11 00
"	30.	To Willis Shores Co., merchandise..... 7 80
"	30.	To Western Union Telegraph Co., tolls 4 28
"	30.	To Dr. J. N. Hurty, secretary, expense 65 53
"	30.	To W. F. King, expense..... 4 45
"	30.	To H. H. Mitchell, expense..... 8 20
"	30.	To Dr. Ada E. Schweitzer, expense..... 15 10
"	30.	To Henry F. Crossen, services..... 36 30
"	30.	To Mrs. Elva Thompson, services..... 43 95
"	30.	To Indianapolis Calcium Light Co., services..... 13 30
		<hr/>
Expense fourth quarter.....		\$7,641 95



Appropriation, regular .....	\$25,000 00
Total expense .....	24,946 29
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Reverting to general fund .....	\$63 71
Baby Book, specific .....	\$4,000 00
Expended .....	3,995 38
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Reverting to general fund .....	\$4 62

#### QUARTERLY BOARD MEETINGS.

1915.	
Oct.	15. To Board Meeting .....
	\$40 00
1916.	
Jan.	14. To Board Meeting .....
	30 00
Apr.	14. To Board Meeting .....
	40 00
July	7. To Board Meeting .....
	40 00

Total for fiscal year ending September 30,  
1916 .....

\$150 00

INDIANA STATE BOARD OF HEALTH—LABORATORY  
OF HYGIENE.

*For Fiscal Year, October 1, 1915, to September 30, 1916.*

1915.			
Oct	31.	To Dr. Will Shimer, salary.....	\$166 66
"	31.	To Dr. Ada E. Schweitzer, salary.....	125 00
"	31.	To Dr. R. J. Anderson, salary.....	46 67
"	31.	To Miss H. M. Hooker, salary.....	70 00
"	31.	To Miss Tabitha Gerlach, salary.....	55 00
"	31.	To Robt. P. Johnson, salary.....	75 00
Nov.	5.	To Jas. L. Anderson, expense.....	2 85
"	5.	To Wm. B. Burford, merchandise.....	219 47
"	5.	To Balke & Krauss Co., merchandise...	49 60
"	5.	To Citizens Gas Co., gas.....	7 26
"	5.	To Central Union Telephone Co., rent and tolls.....	15 30
"	5.	To Adams Express Co., service.....	77
"	5.	To Fulton Office Furniture Co., mer- chandise.....	13 30
"	5.	To Joseph Gardner, merchandise.....	16 00
"	5.	To Harmon & Hall, merchandise.....	4 50
"	5.	To H. M. Hooker, expense.....	1 94
"	5.	To Indianapolis Telephone Co., rent...	13 50
"	5.	To P. A. Krause, merchandise.....	1 95
"	5.	To Lancet Clinic Publishing Co., sub- scription.....	3 00
"	5.	To C. V. Mosby Medical Book & Pub- lishing Co., reprints.....	3 00
"	5.	To W. K. Stewart Co., books.....	6 75
"	5.	To John S. Spann & Co., rent and in- surance.....	146 00
"	5.	To Dr. Will Shimer, expense.....	12 13
"	5.	To U. S. Corrugated-Fibre Box Co., merchandise.....	23 07
"	5.	To Western Union Telegraph Co., tolls	1 96
"	5.	To Pettis Dry Goods Co., merchandise	11 89
"	5.	To G. E. Stichert & Co., book.....	5 50
Nov.	30.	To Dr. Will Shimer, salary.....	166 67
"	30.	To Dr. Ada E. Schweitzer, salary.....	125 00
"	30.	To Dr. R. J. Anderson, salary.....	100 00
"	30.	To Miss H. M. Hooker, salary.....	70 00
"	30.	To Miss Tabitha Gerlach, salary.....	55 00
"	30.	To Robt. P. Johnson, salary.....	75 00
Dec.	4.	To J. L. Anderson, expense.....	5 01
"	4.	To W. B. Burford, merchandise.....	2 81
"	4.	To Citizens Gas Co., gas.....	7 04
"	4.	To Columbia Grocery Co., merchandise	3 75
"	4.	To Aquos Distilled Water Co., merchan- dise.....	1 50
"	4.	To Central Union Telephone Co., tolls	2 50

1915.		
Dec.	4.	To Journal Infectious Diseases, subscription..... \$5 00
"	4.	To The McMillan Co., Publishers, subscription..... 80
"	4.	To G. P. Putman's Sons., books..... 7 51
"	4.	To John S. Spann & Co., rent..... 19 00
"	4.	To Dr. Will Shimer, expense..... 29 35
"	4.	To Dr. Ada E. Schweitzer, expense..... 11 00
"	31.	To Dr. Will Shimer, salary..... 166 67
"	31.	To Dr. Ada E. Schweitzer, salary..... 125 00
"	31.	To Dr. R. J. Anderson, salary..... 100 00
"	31.	To Miss H. M. Hooper, salary..... 70 00
"	31.	To Miss Tabitha Gerlach, salary..... 55 00
"	31.	To Robt. P. Johnson, salary..... 75 00
		<hr/>
Expense first quarter.....		\$2,376 68
1916.		
Jan.	7.	To American Toilet Supply Co., laundry \$40 95
"	7.	To Central Union Telephone Co., tolls 35
"	7.	To Bausch & Lomb Optical Co., merchandise..... 117 00
"	7.	To Adams Express Co., service..... 35
"	7.	To American Express Co., service..... 1 18
"	7.	To Fulton Office Furniture Co., merchandise..... 10 54
"	7.	To Chas. Long, merchandise..... 10 00
"	7.	To John S. Spann & Co., rent..... 19 00
"	7.	To Spencer Lens Co., merchandise..... 15 30
"	7.	To Ben Wade, labor..... 34 50
"	7.	To J. L. Anderson, expense..... 7 48
"	7.	To Miss H. M. Hooker, expense..... 2 95
"	7.	To Dr. Will Shimer, expense..... 39 55
"	31.	To Dr. Will Shimer, salary..... 166 66
"	31.	To Dr. Ada E. Sweitzer, salary..... 125 00
"	31.	To Miss H. M. Hooker, salary..... 70 00
"	31.	To Miss Tabitha Gerlach, salary..... 55 00
"	31.	To Robt. P. Johnson, salary..... 75 00
Feb.	2.	To R. E. Springstein, postage stamps.. 100 00
"	4.	To Adams Express Co., service..... 63
"	4.	To American Medical Association, subscription..... 3 00
"	4.	To Aquos Distilled Water Co., merchandise..... 1 00
"	4.	To Receivers Central Union Telephone, rent and tolls..... 11 89
"	4.	To Citizens Gas Co., gas..... 19 14
"	4.	To Holt Ice & Cold Storage Co., merchandise..... 10 00
"	4.	To Hatfield Electric Co., merchandise.. 2 15

1916.		
Feb.	4.	To Hynson, Wescott Co., merchandise \$1 00
"	4.	To Mooney Mueller Drug Co., merchandise..... 5 25
"	4.	To Pettis Drygoods Co., merchandise.. 8 00
"	4.	To Remington Typewriter Co., merchandise..... 5 00
"	4.	To John S. Spann & Co., rent..... 19 00
"	4.	To W. K. Stewart Co., books..... 1 75
"	4.	To Arthur H. Thomas Co., merchandise 8 41
"	4.	To Wells-Fargo & Co., service..... 55
"	4.	To Jas. L. Anderson, expense..... 4 15
"	4.	To Dr. Ada E. Schweitzer, expense..... 11 30
"	29.	To Dr. Will Shimer, salary..... 166 67
"	29.	To Dr. Ada E. Schweitzer, salary..... 125 00
"	29.	To Dr. R. J. Anderson, salary..... 100 00
"	29.	To Miss H. M. Hooker, salary..... 70 00
"	29.	To Miss Tabitha Gerlach, salary..... 55 00
"	29.	To Robt. P. Johnson, salary..... 75 00
Mar.	6.	To Aquos Distilled Water Co., merchandise..... 1 00
"	6.	To Adams Express Co., service..... 1 17
"	6.	To American Express Co., service..... 61
"	6.	To Central Union Telephone Co., tolls 1 10
"	6.	To Citizens Gas Co., gas..... 6 93
"	6.	To Dugan-Johnson Co., merchandise.. 75
"	6.	To Eimer & Arnend, merchandise..... 23 61
"	6.	To Hervey M. Hooker, expense..... 3 50
"	6.	To Hynson, Westcott & Co., merchandise..... 1 00
"	6.	To Johns Hopkins Press, bulletin..... 2 00
"	6.	To The Journal Medical Research, index 1 50
"	6.	To Pettis Drygoods Co., merchandise.. 2 86
"	6.	To John S. Spann & Co., rent..... 19 00
"	6.	To Arthur H. Thomas Co., merchandise 37 12
"	6.	To Jas. L. Anderson, expense..... 7 15
"	6.	To Dr. Ada E. Schweitzer, expense..... 13 12
"	6.	To Western Union Telegraph Co., tolls 2 54
"	31.	To Dr. Will Shimer, salary..... 166 67
"	31.	To Dr. Ada E. Schweitzer, salary..... 125 00
"	31.	To Dr. R. J. Anderson, salary..... 100 00
"	31.	To Miss H. M. Hooker, salary..... 70 00
"	31.	To Miss Tabitha Gerlach, salary..... 55 00
"	31.	To Robt. P. Johnson, salary..... 75 00
Jan.	31.	To R. J. Anderson, salary..... 100 00

Expense second quarter.....

\$2,411.33

1916.			
Apr.	5.	To American Toilet Supply Co., laundry	\$47 50
"	5.	To Central Union Telephone Co., rent and tolls. ....	11 46
"	5.	To American Express Co., service. ....	1 97
"	5.	To Freaney Bro's, Plumbing. ....	8 50
"	5.	To The H. Lieber Co., merchandise. ....	1 75
"	5.	To Harmon & Hall, merchandise. ....	1 05
"	5.	To John S. Spann & Co., rent. ....	19 00
"	5.	To Spencer Lens Co., merchandise. ....	33 70
"	5.	To G. E. Stechert & Co., books. ....	7 10
"	5.	To W. K. Stewart Co., books. ....	11 75
"	5.	To Dr. Ada E. Schweitzer, expense. ....	18 95
"	5.	To H. E. Zimmer, merchandise. ....	10 20
"	5.	To W. B. Burford, merchandise. ....	60 95
"	5.	To J. L. Anderson, expense. ....	2 00
"	10.	To R. E. Springsteen, P. M., postage. ....	100 00
"	30.	To Dr. Will Shimer, salary. ....	166 66
"	30.	To Dr. Ada E. Schweitzer, salary. ....	137 50
"	30.	To Miss H. M. Hooker, salary. ....	70 00
"	30.	To Miss Tabitha Gerlach, salary. ....	55 00
"	30.	To Miss Julia Zander, salary. ....	40 00
"	30.	To Robt. P. Johnson, salary. ....	75 00
May	5.	To Jas. L. Anderson, expense. ....	6 55
"	5.	To A. W. C. Brumfield, Guinea Pigs. ....	4 50
"	5.	To Central Union Telephone, tolls. ....	2 65
"	5.	To Citizens Gas Co., gas. ....	14 74
"	5.	To Joseph Gardner, merchandise. ....	15 95
"	5.	To Miss Hervey M. Hooker, expense. ....	8 13
"	5.	To P. A. Krause Barber Supply Co., labor. ....	1 50
"	5.	To Railroad Transfer Co., Freight and drayage. ....	1 09
"	5.	To Will Shimer, expense. ....	7 55
"	5.	To Dr. Ada E. Schweitzer, expense. ....	5 43
"	5.	To W. K. Stewart Co., books. ....	13 92
"	5.	To Western Union Telegraph Co., tolls. ....	2 12
"	15.	To John S. Spann & Co., rent. ....	19 00
"	31.	To Dr. Will Shimer, salary. ....	166 67
"	31.	To Dr. Ada E. Schweitzer, salary. ....	137 50
"	31.	To Miss H. M. Hooker, salary. ....	70 00
"	31.	To Miss Tabitha Gerlach, salary. ....	55 00
"	31.	To Miss Julia Zander, salary. ....	40 00
"	31.	To Robt. P. Johnson, salary. ....	75 00
June.	7.	To J. L. Anderson, expense. ....	15 57
"	7.	To Adams Express Co., service. ....	1 00
"	7.	To American Express Co., service. ....	51
"	7.	To Wm. B. Burford, merchandise. ....	25 05
"	7.	To Citizens Gas Co., merchandise. ....	7 37
"	7.	To Central Union Telephone Co., tolls	1 35

1916.		
June	7. To Centennial Charities Exhibit Committee, expense.....	\$10 00
"	7. To Indianapolis Guinea Pig Co., pigs..	6 00
"	7. To Pettis Dry Goods Co., merchandise	13 96
"	7. To Pittman Moore Co., merchandise...	19 35
"	7. To John S. Spann & Co., rent.....	19 00
"	7. To G. E. Stechert & Co., books.....	23 70
"	7. To W. K. Stewart Co., merchandise....	3 20
"	7. To Dr. Will Shimer, expense.....	13 50
"	7. To Dr. Ada E. Schweitzer, expense.....	12 55
"	7. To Western Union Telegraph Co., tolls.	56
"	30. To Dr. William Shimer, salary.....	166 67
"	30. To Dr. Ada E. Schweitzer, salary.....	137 50
"	30. To Miss H. M. Hooker, salary.....	70 00
"	30. To Miss Tabitha Gerlach, salary.....	55 00
"	30. To Miss Julia Zander, salary.....	40 00
"	30. To Robt. P. Johnson, salary.....	75 00
Expense third quarter.....		<hr/> \$2,244 18
July	7. To Jas. L. Anderson, expense.....	\$14 37
"	7. To American Toilet Supply Co., laundry	44 55
"	7. To Bausch & Lomb Optical Co., Merchandise.....	4 62
"	7. To W. B. Burford, merchandise.....	15 00
"	7. To Chicago Medical Book Co., books..	18 80
"	7. To Citizens Gas Co., gas.....	8 14
"	7. To Central Union Telephone Co., rent.	11 53
"	7. To Adams Express Co., service.....	50
"	7. To American Express Co., service.....	25
"	7. To Paul B. Hoeber, book.....	7 25
"	7. To Holt Ice & Cold Storage Co., coupons	20 00
"	7. To Miss H. M. Hooker, expense.....	6 85
"	7. To Mooney, Mueller Ward Co., merchandise.....	3 75
"	7. To Pittman-Moore Co., merchandise...	27 16
"	7. To Dr. Will Shimer, expense.....	35 12
"	7. To W. K. Stewart Co., books.....	7 50
"	7. To Western Union Telegraph Co., tolls.	1 03
"	31. To Dr. Will Shimer, salary.....	166 66
"	31. To Ada E. Schweitzer, salary.....	137 50
"	31. To Miss H. M. Hooker, salary.....	70 00
"	31. To Miss Tabitha Gerlach.....	55 00
"	31. To Miss Julia Zander.....	40 00
"	31. To Aquos Distilled Water Co., merchandise.....	7 00
"	31. To Armstrong Cork Co., merchandise..	44 54
"	31. To Central Union Telephone Co., tolls.	51
"	31. To Commercial Distilling Co., merchandise.....	29 09

1916.			
July	31.	To Adams Express Co., service.....	\$0 35
"	31.	To Paul B. Hoeber, book.....	3 00
Aug	7.	To Indianapolis Tent & Awning Co., repairs.....	50
"	7.	To Kimble Durand Glass Co., merchan- dise.....	30 50
"	7.	To Lancet Clinic Publishing Co., re- prints.....	5 00
"	7.	To C. V. Mosby Medical & Publishing Co., book.....	6 50
"	7.	To V. Mueller & Co., merchandise....	1 50
"	7.	To Railroad Transfer Co., freight and drayage.....	3 22
"	7.	To W. B. Saunders & Co., book.....	7 50
"	7.	To W. K. Stewart Co., Book.....	5 00
"	7.	To Western Union Telegraph Co., tolls.	1 00
"	7.	To Dr. Ada E. Schweitzer, expense.....	10 35
"	7.	To Dr. Jas. L. Anderson, expense.....	11 10
"	31.	To Dr. Will Shimer, salary.....	166 67
"	31.	To Ada E. Schweitzer, salary.....	137 50
"	31.	To Miss H. M. Hooker, salary.....	70 00
"	31.	To Miss Tabitha Gerlach, salary.....	55 00
"	31.	To Miss Julia Zander, salary.....	40 00
"	31.	To Robt. P. Johnson, salary.....	75 00
Sept.	8.	To Aquos Distilled Water Co., merchan- dise.....	1 50
"	8.	To P. Blakinston Son & Co., book.....	4 50
"	8.	To W. B. Burford, merchandise.....	232 07
"	8.	To Central Union Telephone Co., tolls	2 29
"	8.	To Chicago Surgical & Electrical Co., merchandise.....	7 50
"	8.	To Adams Express Co., service.....	78
"	8.	To Wells-Fargo & Co., service.....	99
"	8.	To Freany Bros., repairs.....	3 65
"	8.	To Hall Hardware Co., merchandise....	11 35
"	8.	To Improved Mailing Case Co., mer- chandise.....	150 75
"	8.	To International Equipment Co., mer- chandise.....	1 84
"	8.	To Mooney, Mueller Ward Co., mer- chandise.....	8 66
"	8.	To Arthur H. Thomas Co., merchandise	157 55
"	8.	To Jas. L. Anderson, expense.....	5 70
"	8.	To Dr. Ada E. Schweitzer, expense....	7 95
"	28.	To Dr. Will Shimer, salary.....	166 67
"	28.	To Dr. Ada E. Schweitzer, salary.....	137 50
"	28.	To Miss H. M. Hooker, salary.....	70 00
"	28.	To Tabitha Gerlach, salary.....	55 00
"	28.	To Miss Julia Zander, salary.....	40 00
"	28.	To Robt. P. Johnson, salary.....	75 00

1916.		
Sept.	30.	To American Toilet Supply Co., laundry \$37 65
"	30.	To Wm. B. Burford, merchandise.... 20 80
"	30.	To Citizens' Gas Co., merchandise.... 7 37
"	30.	To Miss Hervey M. Hooker, expense.. 2 00
"	30.	To Indianapolis Guinea Pig Co..... 3 00
July	31.	To Robt. P. Johnson, salary..... 75 00
Sept.	30.	To John S. Spann & Co., insurance and rent..... 120 00
"	30.	To Mooney, Mueller Ward Co., mer- chandise..... 4 62
"	30.	To Railroad Transfer Co., freight and drayage..... 11 94
"	30.	To E. H. Sargent & Co., merchandise.. 35 18
"	30.	To John S. Spann & Co., rent..... 19 00
"	30.	To W. K. Stewart Co., merchandise.... 4 80
"	30.	To Dr. Will Shimer, expense..... 11 25
"	30.	To Hall Hardware Co., merchandise.... 1 10
"	30.	To The H. Leiber Co., merchandise.... 60
"	30.	To Pettis Drygoods Co., merchandise.. 9 71
		<hr/>
Total fourth quarter.....		\$2,912 18
Appropriation.....		\$10,000 00
Total expense.....		9,944 37
		<hr/>
Cash balance reverting to general fund.....		\$55 63



## PURE FOOD AND DRUG LABORATORY

*For Fiscal Year Beginning October 1, 1915, and Ending September 30, 1916.*

1915.

Oct.	28.	To R. E. Springstein, P. M., postage stamps.....	\$100 00
"	31.	To H. E. Barnard, salary.....	208 33
"	31.	To H. E. Bishop, salary.....	150 00
"	31.	To W. D. McAbee, salary.....	150 00
"	31.	To Miss G. M. Stapp, salary.....	75 00
"	31.	To A. W. Bruner, salary.....	125 00
"	31.	To B. W. Cohen, salary.....	125 00
"	31.	To F. W. Tucker, salary.....	125 00
"	31.	To C. L. Hutchins, salary.....	125 00
"	31.	To Richard White, salary.....	125 00
"	31.	To J. L. Anderson, salary.....	8 33
Nov.	5.	To H. E. Barnard, expense.....	12 32
"	5.	To A. W. Bruner, expense.....	62 90
"	5.	To B. W. Cohen, expense.....	58 00
"	5.	To F. W. Tucker, expense.....	73 72
"	5.	To C. L. Hutchins, expense.....	61 19
"	5.	To Richard White, expense.....	79 61
"	5.	To W. B. Burford, merchandise.....	25 10
"	5.	To Central Union Telephone Co., rent and tolls.....	25 46
"	5.	To Adams Express Co., service.....	80
"	5.	To American Express Co., service.....	2 23
"	5.	To Western Union Telegraph Co., tolls.....	1 99
"	5.	To Bausch & Lomb Optical Co., merchandise.....	24 42
"	30.	To H. E. Barnard, salary.....	208 33
"	30.	To H. E. Bishop, salary.....	150 00
"	30.	To W. D. McAbee, salary.....	150 00
"	30.	To Miss G. M. Stapp, salary.....	75 00
"	30.	To A. W. Bruner, salary.....	125 00
"	30.	To B. W. Cohen, salary.....	125 00
"	30.	To C. L. Hutchins, salary.....	125 00
"	30.	To F. W. Tucker, salary.....	125 00
"	30.	To Richard White, salary.....	125 00
"	30.	To Jas. L. Anderson, salary.....	8 33
Dec.	4.	To H. E. Barnard, expense.....	83 56
"	4.	To A. W. Bruner, expense.....	54 13
"	4.	To B. W. Cohen, expense.....	53 93
"	4.	To C. L. Hutchins, expense.....	56 43
"	4.	To F. W. Tucker, expense.....	51 36
"	4.	To Richard White, expense.....	62 35
"	4.	To Central Union Telephone Co., tolls.....	1 55
"	4.	To The Druggists Circular, subscriptions.....	3 00
"	4.	To American Express Co., service.....	1 05
"	4.	To Wells Fargo & Co., express, service.....	25

1915.		
Dec.	4.	To Fertig & Kevers, sign..... \$3 00
"	4.	To Indiana Typewriter & Supply Co., merchandise..... 1 00
"	4.	To F. H. Langsenkamp, merchandise..... 5 05
"	4.	To Standard Calorimeter Co., mer- chandise..... 1 75
"	31.	To H. E. Barnard, salary..... 208 34
"	31.	To H. E. Bishop, salary..... 150 00
"	31.	To W. D. McAbee, salary..... 150 00
"	31.	To A. W. Bruner, salary..... 125 00
"	31.	To B. W. Cohen, salary..... 125 00
"	31.	To E. L. Hutchens, salary..... 125 00
"	31.	To F. W. Tucker, salary..... 125 00
"	31.	To Richard White, salary..... 125 00
"	31.	To Jas. L. Anderson, salary..... 8 34
		<hr/>
Expense first quarter.....		\$4,481 15
1916.		
Jan.	7.	To H. E. Barnard, expense..... \$21 27
"	7.	To A. W. Bruner, expense..... 56 52
"	7.	To B. W. Cohen, expense..... 62 64
"	7.	To C. L. Hutchens, expense..... 52 24
"	7.	To F. W. Tucker, expense..... 43 20
"	7.	To Richard White, expense..... 38 94
"	7.	To American Toilet Supply Co., laundry..... 3 75
"	7.	To American Tent & Awning Co., labor..... 5 00
"	7.	To W. B. Burford, merchandise..... 46 10
"	7.	To Wm. H. Block Co., merchandise.... 6 55
"	7.	To Adams Express Co., service..... 95
"	7.	To American Express Co., service..... 1 11
"	7.	To Indiana Typewriter & Supply Co., repairs..... 14 35
"	7.	To Geo. J. Mayer Co., merchandise... 1 20
"	7.	To Railroad Transfer Co., freight and drayage..... 1 17
"	7.	To G. E. Stechert & Co., books..... 6 85
"	7.	To Western Union Telegraph Co., tolls..... 1 87
"	27.	To R. E. Springstein, postage stamps..... 105 00
"	31.	To H. E. Barnard, salary..... 208 33
"	31.	To H. E. Bishop, salary..... 150 00
"	31.	To W. D. McAbee, salary..... 150 00
"	31.	To A. W. Bruner, salary..... 125 00
"	31.	To B. W. Cohen, salary..... 125 00
"	31.	To F. W. Tucker, salary..... 125 00
"	31.	To C. L. Hutchens, salary..... 125 00
"	31.	To Richard White, salary..... 125 00
"	31.	To Jas. L. Anderson, salary..... 8 33
Feb.	4.	To H. E. Barnard, expense..... 29 93
"	4.	To A. W. Bruner, expense..... 60 85
"	4.	To B. W. Cohen, expense..... 39 18

1916.		
Feb.	4.	To F. W. Tucker, expense . . . . . \$70 13
"	4.	To C. L. Hutchins, expense . . . . . 53 06
"	4.	To Richard White, expense . . . . . 53 78
"	4.	To Adams Express Co., service . . . . . 1 05
"	4.	To American Express Co., service . . . . . 1 99
"	4.	To Receivers Central Union Telephone Co., rent and tolls . . . . . 12 92
"	4.	To Hatfield Electric Co., merchandise . . . . . 2 80
"	4.	To C. P. Lesh Paper Co., merchandise . . . . . 125 11
"	4.	To W. K. Stewart Co., merchandise . . . . . 61 49
"	29.	To H. E. Barnard, salary . . . . . 208 33
"	29.	To H. E. Bishop, salary . . . . . 150 00
"	29.	To W. D. McAbee, salary . . . . . 150 00
"	29.	To A. W. Bruner, salary . . . . . 125 00
"	29.	To B. W. Cohen, salary . . . . . 125 00
"	29.	To F. W. Tucker, salary . . . . . 125 00
"	29.	To C. L. Hutchens, salary . . . . . 125 00
"	29.	To Richard White, salary . . . . . 125 00
"	29.	To Jas. L. Anderson, salary . . . . . 8 34
Mar.	6.	To H. E. Barnard, expense . . . . . 66 69
"	5.	To A. W. Bruner, expense . . . . . 73 93
"	6.	To B. W. Cohen, expense . . . . . 44 70
"	6.	To F. W. Tucker, expense . . . . . 74 28
"	6.	To C. L. Hutchens, expense . . . . . 65 60
"	6.	To Richard White, expense . . . . . 65 12
"	6.	To W. B. Burford, merchandise . . . . . 47 09
"	6.	To The Bobb-Merrill Co., statutes . . . . . 25 00
"	6.	To Frederick Briston, merchandise . . . . . 7 50
"	6.	To Adams Express Co., service . . . . . 55
"	6.	To American Express Co., service . . . . . 3 93
"	6.	To Central Union Telephone Co., tolls . . . . . 1 31
"	6.	To Indiana Typewriter & Supply Co., merchandise . . . . . 12 75
"	6.	To The Lieber Co., merchandise . . . . . 1 66
"	6.	To Pittman Moore Co., merchandise . . . . . 167 53
"	6.	To W. K. Stewart Co., Books and mer- chandise . . . . . 8 30
"	6.	To Vonnegut Hardware Co., merchan- dise . . . . . 2 00
"	31.	To H. E. Barnard, salary . . . . . 208 34
"	31.	To H. E. Bishop, salary . . . . . 150 00
"	31.	To W. D. McAbee, salary . . . . . 150 00
"	31.	To A. W. Bruner, salary . . . . . 125 00
"	31.	To B. W. Cohen, salary . . . . . 125 00
"	31.	To F. W. Tucker, salary . . . . . 125 00
"	31.	To E. L. Hutchens, salary . . . . . 125 00
"	31.	To Richard White, salary . . . . . 125 00
"	31.	To Jas. L. Anderson, salary . . . . . 8 33

Expense second quarter . . . . .

\$5,073 04

1916.		
Apr.	5.	To H. E. Barnard, expense..... \$138 72
"	5.	To A. W. Bruner, expense..... 59 80
"	5.	To B. W. Cohen, expense..... 18 35
"	5.	To F. W. Tucker, expense..... 57 84
"	5.	To C. L. Hutchens, expense..... 54 76
"	5.	To Richard White, expense..... 57 70
"	5.	To American Food Journal, subscription 1 00
"	5.	To American Toilet Supply Co., laundry 3 75
"	5.	To Central Union Telephone Co., rent and tolls..... 12 34
"	5.	To Adams Express Co., service..... 1 29
"	5.	To American Express Co., service..... 2 81
"	5.	To Fulton Office Furniture Co., mer- chandise..... 7 50
"	5.	To Indiana Typewriter & Supply Co., merchandise..... 45
"	5.	To G. E. Stichert & Co., books..... 12 00
"	5.	To W. K. Stewart Co., books..... 1 50
"	5.	To Vonnegut Hardware Co., merchandise 1 40
"	5.	To W. B. Burford, merchandise..... 8 35
"	30.	To H. E. Barnard, salary..... 208 33
"	30.	To H. E. Bishop, salary..... 150 00
"	30.	To W. D. McAbee, salary..... 150 00
"	30.	To A. W. Bruner, salary..... 125 00
"	30.	To B. W. Cohen, salary..... 125 00
"	30.	To F. W. Tucker, salary..... 125 00
"	30.	To C. L. Hutchens, salary..... 125 00
"	30.	To Richard White, salary..... 125 00
"	30.	To Jas. L. Anderson, salary..... 8 33
May	5.	To A. W. Bruner, expense..... 62 92
"	5.	To B. W. Cohen, expense..... 27 45
"	5.	To F. W. Tucker, expense..... 49 31
"	5.	To C. L. Hutchens, expense..... 31 95
"	5.	To Richard White, expense..... 55 90
"	5.	To W. B. Burford, merchandise..... 57 91
"	5.	To Central Union Telephone Co., tolls 3 30
"	5.	To American Express Co., service..... 3 87
"	5.	To Wells-Fargo Co., service..... 25
"	5.	To Master Reporting service, circular 7 46
"	5.	To Pittman Moore Co., merchandise... 23 95
"	5.	To W. K. Stewart Co., books..... 10 50
"	5.	To Spencer Lens Co., merchandise..... 4 20
"	5.	To Western Union Telegraph Co., tolls 1 63
"	5.	To R. E. Springsteen, P. M., postage stamps..... 100 00
"	31.	To H. E. Barnard, salary..... 208 33
"	31.	To H. E. Bishop, salary..... 150 00
"	31.	To W. D. McAbee, salary..... 150 00
"	31.	To A. W. Bruner, salary..... 125 00
"	31.	To B. W. Cohen, salary..... 125 00

1916.

May	31.	To F. W. Tucker, salary.....	\$125 00
"	31.	To C. L. Hutchins, salary.....	125 00
"	31.	To Richard White, salary.....	125 00
"	31.	To James L. Anderson, salary.....	8 33
June	7.	To H. E. Barnard, expense.....	39 31
"	7.	To A. W. Bruner, expense.....	101 82
"	7.	To B. W. Cohen, expense.....	72 60
"	7.	To F. W. Tucker, expense.....	62 96
"	7.	To Richard White, expense.....	71 81
"	7.	To The Wm. H. Block Co., merchandise	10 14
"	7.	To W. B. Burford, merchandise.....	18 90
"	7.	To Bush Kreps Co., merchandise.....	8 85
"	7.	To Central Union Telephone Co., tolls	4 36
"	7.	To Centennial Charities Exhibit Com., expense.....	45 80
"	7.	To Chicago Car Seal Co., merchandise	1 64
"	7.	To Adams Express Co., service.....	11 91
"	7.	To Wells-Fargo & Co., service.....	40
"	7.	To E. J. Gausepohl & Co., merchandise	6 50
"	7.	To C. P. Lesh Paper Co., merchandise	91 88
"	7.	To National Cannery Assn., merchan- dise.....	5 00
"	7.	To Sanborn Electrical Co., merchandise	25 09
"	7.	To Vonnegut Hardware Co., merchan- dise.....	20
"	7.	To Western Union Telegraph Co., tolls	5 52
"	7.	To Arthur H. Thomas Co., merchandise	61 81
"	30.	To H. E. Barnard, salary.....	208 34
"	30.	To H. E. Bishop, salary.....	150 00
"	30.	To W. D. McAbee, salary.....	150 00
"	30.	To A. W. Bruner, salary.....	125 00
"	30.	To B. W. Cohen, salary.....	125 00
"	30.	To F. W. Tucker, salary.....	125 00
"	30.	To C. L. Hutchens, salary.....	125 00
"	30.	To Richard White, salary.....	125 00
"	30.	To Jas. L. Anderson, salary.....	8 34
Expense third quarter.....			\$4,951 57
July	7.	To H. E. Barnard, expense.....	\$32 85
"	7.	To A. W. Bruner, expense.....	77 11
"	7.	To B. W. Cohen, expense.....	99 90
"	7.	To F. W. Tucker, expense.....	56 27
"	7.	To C. L. Hutchens, expense.....	112 27
"	7.	To Richard White, expense.....	77 30
"	7.	To American Toilet Supply Co., laundry	3 75
"	7.	To W. B. Burford, merchandise.....	27 50
"	7.	To Bush Krebs Co., merchandise.....	2 40
"	7.	To Central Union Telephone Co., rent and tolls.....	14 62

1916.		
July	7.	To The Coburn Photo Film Co., merchandise..... \$6 75
"	7.	To Evertt Davis, merchandise..... 14 50
"	7.	To Adams Express Co., service..... 7 22
"	7.	To American Express Co., service..... 3 18
"	7.	To Wells-Fargo & Co., express, service..... 10 50
"	7.	To Gus Habich, merchandise..... 9 00
"	7.	To C. P. Lesh Paper Co., merchandise..... 36 04
"	7.	To R. L. Polk & Co., Directory..... 8 00
"	7.	To W. K. Stewart Co., books..... 7 35
"	7.	To Williams & Wilkins Co., subscription..... 4 00
"	31.	To H. E. Barnard, salary..... 208 33
"	31.	To H. E. Bishop, salary..... 150 00
"	31.	To W. D. McAbee, salary..... 150 00
"	31.	To A. W. Bruner, salary..... 125 00
"	31.	To B. W. Cohen, salary..... 125 00
"	31.	To F. W. Tucker, salary..... 125 00
"	31.	To C. L. Hutchens, salary..... 125 00
"	31.	To Richard White, salary..... 125 00
"	31.	To Jas. L. Anderson, salary..... 8 33
Aug.	7.	To H. E. Barnard, expense..... 19 52
"	7.	To A. W. Bruner, expense..... 70 65
"	7.	To B. W. Cohen, expense..... 75 35
"	7.	To F. W. Tucker, expense..... 74 93
"	7.	To C. L. Hutchens, expense..... 43 90
"	7.	To Richard White, expense..... 59 50
"	7.	To W. B. Burford, merchandise..... 42 25
"	7.	To American Express Co., service..... 2 66
"	7.	To W. K. Stewart Co., books..... 4 00
"	7.	To The American Grocer, books..... 10 00
"	7.	To R. E. Springsteen, P. M., postage stamps..... 100 00
"	25.	To R. E. Springsteen, P. M., postage stamps..... 30 00
"	31.	To H. E. Barnard, salary..... 208 33
"	31.	To H. E. Bishop, salary..... 150 00
"	31.	To W. D. McAbee, salary..... 150 00
"	31.	To A. W. Bruner, salary..... 125 00
"	31.	To B. W. Cohen, salary..... 125 00
"	31.	To F. W. Tucker, salary..... 125 00
"	31.	To C. L. Hutchens, salary..... 125 00
"	31.	To Richard White, salary..... 125 00
"	31.	To James L. Anderson, salary..... 8 33
Sept.	8.	To H. E. Barnard, expense..... 37 72
"	8.	To W. D. McAbee, expense..... 37 94
"	8.	To A. W. Bruner, expense..... 87 78
"	8.	To B. W. Cohen, expense..... 75 65
"	8.	To F. W. Tucker, expense..... 64 40
"	8.	To C. L. Hutchens, expense..... 62 76
"	8.	To Richard White, expense..... 86 62

1916.			
Sept.	8.	To W. B. Burford, merchandise. ....	\$94 06
"	8.	To Adams Express Co., service. ....	40
"	8.	To Wells-Fargo & Co., service. ....	25
"	8.	To Fulton Office Furniture Co., merchandise. ....	10 40
"	8.	To Merchants Heat & Light Co., merchandise. ....	17 50
"	8.	To Schnull & Co., merchandise. ....	4 90
"	28.	To H. E. Barnard, salary. ....	208 34
"	28.	To H. E. Bishop, salary. ....	150 00
"	28.	To W. D. McAbee, salary. ....	150 00
"	28.	To A. W. Bruner, salary. ....	125 00
"	28.	To B. W. Cohen, salary. ....	125 00
"	28.	To F. W. Tucker, salary. ....	125 00
"	28.	To C. L. Hutchens, salary. ....	125 00
"	28.	To Richard White, salary. ....	125 00
"	28.	To Jas. L. Anderson, salary. ....	8 34
"	30.	To American Toilet Supply Co., laundry. ....	3 75
"	30.	To H. E. Barnard, expense. ....	99 83
"	30.	To W. B. Burford, merchandise. ....	101 34
"	30.	To Hampton Printing Co., merchandise. ....	90 00
"	30.	To The Haverstick Co., merchandise. ....	21 25
"	30.	To Indiana Typewriter & Supply Co., merchandise. ....	3 75
"	30.	To Spencer Lens Co., merchandise. ....	1 16
"	30.	To W. K. Stewart Co., merchandise. ....	11 08
"	30.	To Williams & Wilkins Co., subscription. ....	4 00
		Expense fourth quarter. ....	\$5,484 99
		Less deduction Voucher No. 9047 March 6, 1916. ....	36
			<hr/> \$5,484 63
		Appropriation. ....	\$20,000 00
		Total expense. ....	19,990 39
			<hr/>
		Cash balance reverting to general fund. ....	\$9 61

## WATER LABORATORY

*For Fiscal Year, October 1, 1915, to September 30, 1916.*

1915.			
Oct.	31.	To John C. Diggs, salary .....	\$125 00
"	31.	To Mary Vestal, salary .....	50 00
"	31.	To G. C. Thomas, salary .....	75 00
"	31.	To Floyd Huff, salary .....	40 00
"	31.	To Phillip Brodus, salary .....	50 00
Nov.	5.	To W. A. Carr, labor .....	4 95
"	5.	To The H. Lieber Co., merchandise ....	11 02
"	5.	To R. T. Osborn, repairs .....	1 50
"	30.	To John C. Diggs, salary .....	125 00
"	30.	To Mary Vestal, salary .....	50 00
"	30.	To G. C. Thomas, salary .....	75 00
"	30.	To Floyd Huff, salary .....	40 00
"	30.	To Phillip Brodus, salary .....	50 00
Dec.	4.	To Green City Boat Co., labor and storage of boat .....	40 00
"	4.	To J. C. Diggs, expense .....	18 16
"	31.	To John C. Diggs, salary .....	125 00
"	31.	To Mary Vestal, salary .....	50 00
"	31.	To G. C. Thomas, salary .....	75 00
"	31.	To Floyd Huff, salary .....	40 00
"	31.	To Phillip Brodus, salary .....	50 00
Expense first quarter .....			\$1,095 63
1916.			
Jan.	7.	To American Toilet Supply Co., laundry	\$4 95
"	7.	To John C. Diggs, expense .....	2 74
"	7.	To Geo J. Mayer Co., merchandise ....	1 75
"	7.	To R. T. Osborn, labor .....	1 00
"	7.	To Wells-Fargo Express Co., service ....	50
"	31.	To John C. Diggs, salary .....	125 00
"	31.	To Mary Vestal, salary .....	50 00
"	31.	To G. C. Thomas, salary .....	75 00
"	31.	To Floyd Huff, salary .....	40 00
"	31.	To Philip Brodus, salary .....	50 00
Feb.	4.	To Geo. J. Mayer Co., merchandise ....	1 75
"	4.	To Wells-Fargo & Co., express .....	1 05
"	29.	To John C. Diggs, salary .....	135 00
"	29.	To Mary Vestal, salary .....	55 00
"	29.	To G. C. Thomas, salary .....	75 00
"	29.	To Floyd Huff, salary .....	40 00
"	29.	To Phillip Brodus, salary .....	50 00
Mar.	6.	To Adams Express Co., service .....	1 92
"	6.	To American Express Co., service .....	40
"	6.	To John C. Diggs, Expense .....	2 00
"	6.	To H. Lieber Co., merchandise .....	23 91
"	6.	To Pittman-Moore Co., merchandise ....	13 27
"	6.	To W. K. Stewart Co., merchandise ....	53 99



1916.		
Mar.	31.	To John C. Diggs, salary . . . . . \$135 00
"	31.	To Mary Vestal, salary . . . . . 55 00
"	31.	To G. C. Thomas, salary . . . . . 75 00
"	31.	To Floyd Huff, salary . . . . . 40 00
"	31.	To Phillip Brodus, salary . . . . . 50 00
		<hr/>
Expense second quarter . . . . .		\$1,159 23
Apr.	5.	To American Toilet Supply Co., laundry \$5 55
"	5.	To John C. Diggs, expense . . . . . 15 01
"	5.	To Fulton Office Furniture Co., mer-
		chandise . . . . . 3 15
"	5.	To Western Union Telegraph Co., tolls 5 24
"	30	To John C. Diggs, salary . . . . . 135 00
"	30.	To Mary Vestal, salary . . . . . 55 00
"	30.	To G. C. Thomas, salary . . . . . 75 00
"	30.	To Floyd Huff, salary . . . . . 40 00
"	30.	To Phillip Brodus, salary . . . . . 50 00
May	31.	To John C. Diggs, salary . . . . . 135 00
"	31.	To Mary Vestal, salary . . . . . 55 00
"	31.	To G. C. Thomas, salary . . . . . 75 00
"	31.	To Floyd Huff, salary . . . . . 40 00
"	31.	To Phillip Brodus, salary . . . . . 50 00
June	7.	To J. C. Diggs, expense . . . . . 37 50
"	7.	To American Express Co., service . . . . . 2 66
"	7.	To Pittman-Moore Co., merchandise . . . . . 15 05
"	7.	To Union Traction Co., freight and
		drayage . . . . . 1 73
"	30.	To John C. Diggs, salary . . . . . 135 00
"	30.	To Mary Vestal, salary . . . . . 55 00
"	30.	To G. C. Thomas, salary . . . . . 75 00
"	30.	To Floyd Huff, salary . . . . . 40 00
"	30.	To Phillip Brodus, salary . . . . . 50 00
July	7.	To American Toilet Supply Co., laundry 4 20
"	7.	To John C. Diggs, expense . . . . . 9 93
"	7.	To Adams Express Co., service . . . . . 3 10
"	7.	To Wells-Fargo & Co., express . . . . . 1 35
"	31.	To John C. Diggs, salary . . . . . 135 00
"	31.	To Mrs. Mary Cannon, salary . . . . . 55 00
"	31.	To G. C. Thomas, salary . . . . . 75 00
"	31.	To Floyd Huff, salary . . . . . 75 00
"	31.	To Phillip Brodus, salary . . . . . 50 00
Aug.	7.	To John C. Diggs, expense . . . . . 31 65
"	7.	To G. C. Thomas, expense . . . . . 60 35
"	7.	To Adams Express Co., service . . . . . 5 00
"	7.	To Wells-Fargo & Co., express . . . . . 1 30
"	7.	To Vonnegut Hardware Co., merchan-
		dise . . . . . 3 04
"	31.	To John C. Diggs, salary . . . . . 135 00
"	31.	To Mrs. Mary Cannon, salary . . . . . 55 00

1916.		
Aug.	31.	To G. C. Thomas, (5 days) salary..... \$12 50
"	31.	To Floyd Huff, salary..... 75 00
"	31.	To Phillip Brodus, salary..... 50 00
Sept.	8.	To John C. Diggs, expense..... 50 14
"	8.	To American Express Co., service..... 43
"	8.	To R. T. Osborn, repairs..... 1 00
"	8.	To G. C. Thomas, expense..... 43 83
"	28.	To John C. Diggs, salary..... 135 00
"	28.	To Mrs. Mary Cannon, salary..... 55 00
"	28.	To Irvin E. Taylor, salary..... 60 00
"	28.	To Phillip Brodus, salary..... 50 00
"	30.	To American Toilet Supply Co., laundry 3 75
"	30.	To Balke & Krauss Co., merchandise 21 25
"	30.	To Bausch & Lomb Optical Co., merchandise..... 37 12
"	30.	To John C. Diggs, expense..... 9 40
"	30.	To Fertig & Keevers, labor..... 111 50
"	30.	To Roscoe N. Jones, drayage..... 7 50
"	30.	To Pittman-Moore Co., merchandise... 73 71
"	30.	To E. H. Sargent & Co., merchandise... 88 38
		<hr/>
		Expense fourth quarter..... \$1,585 43
		Appropriation..... \$5,000 00
		Expense first quarter..... 1,095 63
		Expense second quarter..... 1,159 23
		Expense third quarter..... 1,150 89
		Expense fourth quarter..... 1,585 43
		<hr/>
		Total expense..... \$4,991 18
		<hr/>
		Balance reverting to general fund \$8 82

## HYDROPHOBIA FUND.—INDIANA STATE BOARD OF HEALTH.

*For Fiscal year, October 1, 1915, to September 30, 1916.*

1915.		
Oct.	5.	To Mrs. Susan Stevenson, room and board..... \$18 00
"	31.	To Dr. Chester Demaree, salary..... 100 00
"	31.	To Miss Etta M. Dolan, salary..... 60 00
"	31.	To Jas. L. Anderson, salary..... 25 00
"	31.	To Wm. Abston, salary..... 10 00
Nov.	5.	To J. L. Anderson, railroad fares..... 39 85
"	5.	To Hotel Metropole, room..... 1 00
"	5.	To Mrs. Jas A. Millikin, meals..... 1 00
"	5.	To Mrs. Susan Stevenson, room and board..... 35 00
"	5.	To The Francis Pharmacy, merchandise 3 00
"	5.	To Fulton Office Furniture Co., merchandise..... 159 50

## 1915.

Nov.	5.	To Harmon & Hall, merchandise.....	\$3 40
"	5.	To Klee & Coleman, merchandise.....	10 00
"	5.	To John S. Spann & Co., rent.....	25 00
"	24.	To Jas. L. Anderson, railroad fares....	22 20
"	24.	To Hotel Metropole, rooms.....	46 00
"	24.	To Mrs. Jas. A. Millikin, meals.....	62 50
"	24.	To Mrs. Mary Lingenfelter, room and board.....	19 12
"	24.	To Dr. Chester Demaree, salary.....	100 00
"	30.	To Miss Etta M. Dolan, salary.....	60 00
"	30.	To Jas. L. Anderson, salary.....	25 00
"	30.	To William Abston, salary.....	10 00
Dec.	4.	To J. L. Anderson, railroad fares.....	2 32
"	4.	To Aquos Distilled Water Co., mer- chandise.....	1 50
"	4.	To Holt Ice & Cold Storage Co., book..	10 00
"	4.	To Mrs. R. E. Murry, room and board	36 00
"	4.	To John S. Spann & Co., rent.....	25 00
"	31.	To Dr. Chester Demaree, salary.....	100 00
"	31.	To Miss Etta M. Dolan, salary.....	60 00
"	31.	To Jas. L. Anderson, salary.....	25 00
"	31.	To William Abston, salary.....	10 00

## Expense first quarter.....

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\$1,105 39

## 1916.

Jan.	7.	To American Toilet Supply Co., laundry	\$9 65
"	7.	To Jas. L. Anderson, railroad fares....	23 70
"	7.	To Citizens Gas Co., gas.....	8 58
"	7.	To The Francis Pharmacy Co., mer- chandise.....	6 70
"	7.	To Chas. Long, merchandise.....	7 50
"	7.	To Hotel Metropole, rooms.....	24 75
"	7.	To Mrs. Jas. A. Millikin, meals.....	33 00
"	7.	To Mrs. Susan Stevenson, room and meals.....	50 00
"	7.	To John S. Spann & Co., rent.....	25 00
"	7.	To G. E. Stechert & Co., books.....	21 50
"	31.	To Dr. Chester Demaree, salary.....	100 00
"	31.	To Miss Etta M. Dolan, salary.....	60 00
"	31.	To Jas. L. Anderson, salary.....	25 00
"	31.	To Wm. Abston, salary.....	10 00
Feb.	4.	To J. L. Anderson, railroad fares.....	11 20
"	4.	To Aquos Distilled Water Co., merchan- dise.....	1 00
"	4.	To Dugan Johnson Co., merchandise..	4 50
"	4.	To The Francis Pharmacy Co., mer- chandise.....	1 90
"	4.	To John S. Spann & Co., rent.....	25 00
"	29.	To Dr. Chester Demaree, salary.....	100 00
"	29.	To Miss Etta M. Dolan, salary.....	60 00

1916.		
Feb.	29.	To Jas. L. Anderson, salary..... \$25 00
"	29.	To William Abston, salary ..... 10 00
Mar.	6.	To Jas. L. Anderson, railroad fares..... 28 73
"	6.	Hotel Metropole, rooms..... 54 25
"	6.	To Mrs. James A. Millikin, meals..... 74 00
"	6.	To Mrs. Susan Stevenson, meals..... 39 00
"	6.	To Fulton Office Furniture Co., mer- chandise..... 5 00
"	6.	To John S. Spann & Co., rent..... 25 00
"	6.	To Eli Lilly Co., merchandise..... 6 57
"	25.	To Chester Demaree, salary..... 80 65
"	31.	To Miss Etta M. Dolan, salary..... 60 00
"	31.	To Jas. L. Anderson, salary..... 25 00
"	31.	To William Abston, salary ..... 10 00
		<hr/>
Expense second quarter.....		\$1,052 18
Apr.	5.	To Jas. L. Anderson, railroad fares.... \$15 15
"	5.	To Hotel Metropole, rooms..... 25 50
"	5.	To Mrs. Jas. A. Millikin, meals..... 33 50
"	5.	To Mrs. Jessie Strouse, rooms and meals 42 00
"	5.	To American Toilet Supply Co., laundry 9 00
"	5.	To Francis Pharmacy Co., merchandise 6 50
"	5.	To Holt Ice & Cold Storage Co., mer- chandise..... 10 00
"	5.	To John S. Spann & Co., rent..... 25 00
"	6.	To Mrs. Geo. L. Leavett, room and board..... 25 00
"	10.	To R. E. Springsteen, postage..... 25 00
"	30.	To Dr. R. J. Anderson, salary..... 125 00
"	30.	To Miss Etta M. Dolan, salary..... 60 00
"	30.	To Jas. L. Anderson, salary..... 25 00
"	30.	To William Abston, salary ..... 10 00
May	5.	To Jas. L. Anderson, railroad fares..... 18 61
"	5.	To St. Denis Hotel, room and board.... 228 75
"	15.	To John S. Spann & Co., rent..... 25 00
"	27.	To Jas. L. Anderson, railroad fares..... 61 10
"	27.	To Mrs. Frank Corlett, room and board 42 00
"	27.	To Walter Dougherty, room and board. 84 00
"	27.	To Herman Stinson, room and board... 21 00
"	27.	To J. M. Riley St. Denis Hotel, room and board..... 288 75
"	31.	To Dr. R. J. Anderson, salary..... 125 00
"	31.	To Miss Etta Dolan, salary ..... 60 00
"	31.	To Jas. L. Anderson, salary ..... 25 00
"	31.	To Wm. Abston, salary ..... 10 00
June	7.	To Jas. L. Anderson, railroad fares..... 14 10
"	7.	To International Instrument Co., mer- chandise..... 11 00
"	7.	To Pittman-Moore Co., merchandise... 15 85

1916.		
June	7.	To John S. Spann & Co., rent..... \$25 00
"	7.	To St. Denis Hotel, room and board... 105 00
"	30.	To Dr. R. J. Anderson, salary..... 125 00
"	30.	To Miss Etta M. Dolan, salary..... 60 00
"	30.	To Jas. L. Anderson, salary..... 25 00
"	30.	To William Abston, salary..... 10 00
		<hr/>
Expense third quarter.....		\$1,816 81
July	7.	To Jas. L. Anderson, railroad fares..... \$14 71
"	7.	To American Toilet Supply Co., laundry 12 35
"	7.	To Miss Laura Bauer, room and board 21 00
"	7.	To Francis Pharmacy Co., merchandise 1 50
"	7.	To Mrs. C. J. Hindel, room and board. 7 00
"	7.	To J. M. Riley, St. Denis Hotel, room and board..... 31 25
"	7.	To Mrs. Susan Stevenson, room and board..... 26 00
"	22.	To Jas. L. Anderson, meals and railroad fare..... 96 79
"	22.	To Mrs. James Hooker, room and meals 40 00
"	22.	To St. Denis Hotel, J. M. Riley, room and meals..... 168 75
"	31.	To Dr. R. J. Anderson, salary..... 125 00
"	31.	To Marguerite N. Hewitt, salary..... 40 00
"	31.	To Jas. L. Anderson, salary..... 25 00
"	31.	To William Abston, salary..... 10 00
Aug.	7.	To Aquos Distilled Water Co., merchan- dise..... 8 50
"	7.	To W. B. Burford, merchandise..... 8 90
"	7.	To Citizens Gas Co., gas..... 8 69
"	7.	To Francis Pharmacy Co., merchandise 22 75
"	7.	To Klee & Coleman, merchandise..... 4 00
"	7.	To Jas. L. Anderson, railroad fares..... 19 91
"	7.	To Mrs. Dillard Drake, room and board 42 00
"	7.	To St. Denis Hotel, room and board... 35 00
"	7.	To Mrs. Chas. Beard, room and board. 28 00
"	7.	To The Eli Lilly & Co., merchandise... 39 22
"	31.	To Dr. R. J. Anderson, salary..... 125 00
"	31.	To Margueritte Hewitt, salary..... 40 00
"	31.	To Jas. L. Anderson, salary..... 25 00
"	31.	To William Abston, salary..... 10 00
Sept	8.	To Aquos Distilled Water Co., merchan- dise..... 3 50
"	8.	To L. S. Ayers & Co., merchandise... 1 00
"	8.	To Citizens Gas Co., merchandise..... 6 49
"	8.	To The Eli Lilly Co., merchandise..... 15 01
"	8.	To The Sanborn Electric Co., mer- chandise..... 9 25

1916.			
Sept.	8.	To John S. Spann & Co., insurance and rent.....	\$138 50
"	8.	To Jas. L. Anderson, railroad fares....	12 40
"	8.	To St. Denis Hotel, room and board....	17 50
"	8.	To Mrs. Walter C. Yager, room and board.....	25 00
"	28.	To Dr. R. J. Anderson, salary.....	125 00
"	28.	To Margueritte Hewitt, salary.....	40 00
"	28.	To Jas. L. Anderson, salary.....	25 00
"	28.	To William Abston, salary.....	10 00
"	30.	To American Toilet Supply Co., laundry.....	18 59
"	30.	To Dr. R. J. Anderson, expense.....	4 80
"	30.	To Jas. L. Anderson, railroad fares....	20 35
"	30.	To Wm. H. Armstrong Co., merchandise.....	3 37
"	30.	To The Francis Pharmacy Co., merchandise.....	16 68
"	30.	To John S. Spann & Co., rent.....	25 00
"	30.	To St. Denis Hotel, room and board....	52 50
"	30.	To Freaney Bros., labor and merchandise.....	79 60
July	22.	To Y. M. C. A., rooms.....	21 00
Expense fourth quarter.....			<hr/> \$1,706 86
Total carried over.....		\$3,000 00	
Total collected.....		6,212 34	
		<hr/>	
		\$9,212 34	
Total expense.....		5,681 24	
		<hr/>	
Balance.....		\$3,531 10	
Reverting to general fund.....		531 10	
		<hr/>	
Carried over.....		\$3,000 00	

#### INDIANA STATE BOARD OF HEALTH—WEIGHTS AND MEASURES.

*For Fiscal Year, October 1, 1915, to September 30, 1916.*

1915.			
Oct.	31.	To H. E. Barnard, salary.....	\$83 33
"	31.	To John T. Willett, salary.....	125 00
"	31.	To Edith Hoffman, salary.....	75 00
"	31.	To J. L. Anderson, salary.....	8 33
Nov.	5.	To Fertig & Keevers, merchandise....	6 85
"	5.	To C. P. Lesh Paper Co., merchandise..	27 38
"	5.	To D. H. Smith, Drayage.....	15 29
"	5.	To John T. Willett, expense.....	80 66
"	5.	To G. Vanderburg.....	6 05
"	30.	To H. E. Barnard, salary.....	83 33

1915.		
Nov.	30.	To John T. Willett, salary . . . . . \$125 00
"	30.	To Edith Hoffman, salary . . . . . 75 00
"	30.	To Jas. L. Anderson, salary . . . . . 8 33
Dec.	4.	To D. H. Smith, freight and drayage . . . 5 25
"	4.	To John T. Willett, expense . . . . . 66 11
"	30.	To H. E. Barnard, salary . . . . . 83 34
"	30.	To John T. Willett, salary . . . . . 125 00
"	30.	To Edith Hoffman, salary . . . . . 75 00
"	30.	To Jas. L. Anderson, salary . . . . . 8 34

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Expense first quarter . . . . . \$1,082 59

1916.		
Jan.	7.	To John T. Willett, expense . . . . . \$47 22
"	31.	To H. E. Barnard, salary . . . . . 83 33
"	31.	To John T. Willett, salary . . . . . 125 00
"	31.	To Edith Hoffman, salary . . . . . 75 00
"	31.	To James L. Anderson, salary . . . . . 8 33
Feb.	4.	To W. & L. E. Gurley, merchandise . . . 4 93
"	4.	To Indiana Typewriter Co., merchandise . 40 00
"	4.	To D. H. Smith, freight and drayage . . . 14 73
"	4.	To John T. Willett, expense . . . . . 70 15
"	29.	To H. E. Barnard, salary . . . . . 83 33
"	29.	To John T. Willett, salary . . . . . 125 00
"	29.	To Edith Hoffman, salary . . . . . 75 00
"	29.	To Jas. L. Anderson, salary . . . . . 8 33
Mar.	6.	To John T. Willett, expense . . . . . 81 50
"	6.	To D. H. Smith, drayage . . . . . 4 26
"	31.	To H. E. Barnard, salary . . . . . 83 34
"	31.	To John T. Willett, salary . . . . . 125 00
"	31.	To Edith Hoffman, salary . . . . . 75 00
"	31.	To Jas. L. Anderson, salary . . . . . 8 34

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Expense second quarter . . . . . \$1,137 79

Apr.	5.	To John T. Willett, Expense . . . . . \$45 95
"	30.	To H. E. Barnard, salary . . . . . 83 33
"	30.	To John T. Willett, salary . . . . . 125 00
"	30.	To Edith Hoffman, salary . . . . . 75 00
"	30.	To Jas. L. Anderson, salary . . . . . 8 33
May	5.	To John T. Willett, expense . . . . . 55 47
"	5.	To D. H. Smith, freight and drayage . . . 1 68
"	31.	To H. E. Barnard, salary . . . . . 83 33
"	31.	To John T. Willett, salary . . . . . 125 00
"	31.	To Edith Hoffman, salary . . . . . 75 00
"	31.	To Jas. L. Anderson, salary . . . . . 8 33
June	7.	To John T. Willett, expense . . . . . 76 46
"	7.	To Railroad Transfer Co., freight and drayage . . . . . 11 93
"	30.	To H. E. Barnard, salary . . . . . 83 34

1916.			
June	30.	To John T. Willett, salary . . . . .	\$125 00
"	30.	To Edith Hoffman, salary . . . . .	75 00
"	30.	To Jas. L. Anderson, salary . . . . .	8 34
Expense third quarter . . . . .			\$1,066 49
July	7.	To John T. Willett, expense . . . . .	\$51 30
"	7.	To Express Parcel Delivery Co., service.	5 00
"	31.	To H. E. Barnard, salary . . . . .	83 33
"	31.	To John T. Willett, salary . . . . .	125 00
"	31.	To Edith Hoffman, salary . . . . .	75 00
"	31.	To Jas. L. Anderson, salary . . . . .	8 33
Aug.	7.	To Baker Bros', rent of furniture . . . . .	10 00
"	7.	To John T. Willett, expense . . . . .	55 40
"	31.	To H. E. Barnard, salary . . . . .	83 33
"	31.	To John T. Willett, salary . . . . .	125 00
"	31.	To Edith Hoffman, salary . . . . .	75 00
"	31.	To Jas. L. Anderson, salary . . . . .	8 33
Sept.	8.	To Dr. D. H. Smith, freight and drayage	4 12
"	8.	To John T. Willett, expense . . . . .	81 70
"	16.	To The American Multigraph Sales Co., merchandise . . . . .	316 05
"	28.	To H. E. Barnard, salary . . . . .	83 34
"	28.	To John T. Willett, salary . . . . .	125 00
"	28.	To Edith Hoffman, salary . . . . .	75 00
"	28.	To Jas. L. Anderson, salary . . . . .	8 34
"	30.	To Brydon Bros., repairs . . . . .	109 00
"	30.	To Adams Express Co., service . . . . .	2 90
"	30.	To American Express Co., service . . . . .	3 20
"	30.	To Wells-Fargo Co., service . . . . .	1 75
"	30.	To The C. B. Howard Co., merchandise	102 15
"	30.	To The Ross Carriage Co., merchandise	65 00
"	30.	To Scientific Materials Co., merchan- dise . . . . .	1 29
"	30.	To Schnull & Co., merchandise . . . . .	7 95
"	30.	To D. H. Smith, freight and drayage . .	2 50
"	30.	To Express Parcels Delivery Co., dray- age . . . . .	1 00
Expense fourth quarter . . . . .			\$1,695 31
Appropriation . . . . .			\$5,000 00
Total expense . . . . .			4,982 18
Balance reverting to general fund			\$17 82



INDIANA STATE BOARD OF HEALTH  
COLD STORAGE FUND.

*For Fiscal Year, October 1, 1915, to September 30, 1916.*

1915.				
Oct.	14.	To checks for inspection and license.....	\$20 00	
Nov.	22.	To cash for inspection and license.....	10 00	
1916.				
Jan.	3.	To cash for inspection and license.....	10 00	
"	21.	To cash for inspection and license.....	10 00	
Apr.	14.	To cash for inspection and license.....	20 00	
"	15.	To cash for inspection and license.....	10 00	
"	19.	To cash for inspection and license.....	30 00	
"	26.	To cash for inspection and license.....	50 00	
"	27.	To cash for inspection and license.....	20 00	
May	11.	To cash for inspection and license.....	60 00	
June	21.	To cash for inspection and license.....	80 00	
July	24.	To cash for inspection and license.....	80 00	
Aug.	21.	To cash for inspection and license.....	10 00	
Sept.	26.	To cash for inspection and license.....	30 00	
			<hr/>	
Total receipts.....				\$440 00
Sept.	30.	To A. W. Bruner, expense.....	\$74 92	
"	30.	To B. W. Cohen, expense.....	61 40	
"	30.	To F. W. Tucker, expense.....	63 84	
"	30.	To C. L. Hutchens, expense.....	65 01	
"	30.	To Richard White, expense.....	55 18	
"	30.	To John T. Willett, expense.....	49 55	
			<hr/>	
Total expense.....				\$369 90
				<hr/>
Balance reverting to general fund.				\$ 70 10



TRANSCRIPTS

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PROCEEDINGS

OF THE

STATE BOARD OF HEALTH

FOR

YEAR ENDING SEPTEMBER 30, 1916



**REGULAR QUARTERLY MEETING OF THE INDIANA  
STATE BOARD OF HEALTH FOR THE FIRST FISCAL  
AND THE FOURTH STATISTICAL YEAR, BOTH  
ENDING DECEMBER 31, 1915.**

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JANUARY 14, 1916.

Called to order at 1:30 p. m.

Present—Drs. Boyers, Freeland, Kern, Hurty.

The president announced the meeting was regular and was for the purpose of attending to the business of the first fiscal and the fourth statistical quarter, both ending December 31, 1915, and to attend to such other business as might come before the board.

**REPORT OF SECRETARY FOR THE FIRST FISCAL AND  
FOURTH STATISTICAL QUARTER, BOTH ENDING  
DECEMBER 31, 1915.**

The last quarter of 1915 was marked by many epidemics throughout the state. The diseases which were epidemic in places were: measles, diphtheria, smallpox, tonsillitis, scarlet fever, "winter cholera" and lagrippe. Smallpox was really epidemic only in Warren county where 60 cases and no deaths appeared. The disease occurred elsewhere but not to the degree mentioned. Diphtheria in epidemic form appeared in Vermillion county near Clinton. Franklin county, 72 cases, schools closed three times. Martin county at Shoals, schools closed. Miami county, at Amboy, schools closed. Cass county, Logansport, scarlet fever, schools closed. St. Joe, Dekalb county, measles, schools closed. Kosciusko county, Warsaw, measles, schools closed, 110 cases reported. Lake county, Indiana Harbor, schools closed, 100 cases reported. Whitley county, Coesse, measles, schools closed. Lake county, Hammond, diphtheria "serious outbreak." Lake county, Hammond, measles, schools closed. Decatur county, Burney, scarlet fever, schools closed. Kosciusko county, Claypool, diphtheria and scarlet fever. Schools closed in Clay county. Marion county, scarlet fever at Indianapolis and lagrippe all over the state.

Tonsillitis was also frequently reported and was very prevalent and probably some of the tonsillitis was diphtheria.

Despite all these epidemics which certainly did a great deal of damage and were very extensive, the death rate for the quarter is no higher than for the corresponding quarter last year.

Death rate, 4th quarter, 1914, 11.5.

Death rate, 4th quarter, 1915, 11.8.

November 10th, an epidemic of so called "winter cholera" which was almost certainly typhoid fever, was reported in Indianapolis. The curious fact connected with the epidemic was that it occurred within a certain area in the northeastern part of the city. A few cases appeared elsewhere but it may be stated generally that the epidemic was practically confined to the area bounded by 34th Street on the north, 15th Street on the south, North Capitol Avenue on the west and Bellefontaine Street on the east. It was estimated the cases numbered 1,000. The attacks were characterized by a chill of greater or less intensity, sickness of the stomach, more or less intestinal pain, vomiting and diarrhea and generally a rise in temperature, but sometimes a subnormal temperature. Headache was also one of the pretty generally constant symptoms. Those attacked recovered rapidly although the symptoms were very alarming. Following this outbreak 41 cases of typhoid fever were reported with 5 deaths and here it may be mentioned there were 33 typhoid fever deaths in 1915 while there were 57 in 1914 in Indianapolis. It is believed this outbreak of so called "winter cholera" was a type of typhoid fever for the Widal reaction has appeared in many of the cases and typhoid bacilli have been found in discharges. This epidemic was charged to the water supply but it is quite impossible to explain why if the water carried the infection that the whole city did not suffer because there is only one water company and the mains are all joined together and the circulation is general. Nine cases of meat poisoning were reported at the time of the epidemic and these nine cases were very probably due to eating diseased pork which possibly had not been thoroughly cooked. It is known that a great many swine with cholera had been rushed to the markets in the state and that many animals suffering from the disease had been slaughtered and their meat sold for food.

The following tables show the smallpox and typhoid fever status for the quarter:

## SMALLPOX.

<i>Months.</i>	<i>Cases.</i>	<i>Deaths.</i>	<i>Counties Invaded.</i>
October, 1914.....	232	0	23
October, 1915.....	39	0	8
November, 1914.....	637	1	24
November, 1915.....	127	0	16
December, 1914.....	386	2	37
December, 1915.....	246	1	20
<hr/>			
Total, 1914.....	1,255	3	84
Total, 1915.....	412	1	44

## TYPHOID FEVER.

<i>Months.</i>	<i>Cases.</i>	<i>Deaths.</i>	<i>Counties Invaded.</i>
October, 1914.....	414	75	69
October, 1915.....	249	55	52
November, 1914.....	339	78	60
November, 1915.....	133	57	45
December, 1914.....	152	41	43
December, 1915.....	180	36	41
<hr/>			
Total, 1914.....	905	194	172
Total, 1915.....	562	148	139

Three deaths in two counties from pellagra were reported as follows: Marion county, male 64 years; Washington county female 49 years; DeKalb county, female 30 years.

A signal triumph over this disease has been noted in experiments of the U. S. Public Health Service, which are certainly conclusive that pellagra is a dietary disease, and as these experiments were made in the year 1915 it is fitting that the fact be recorded here. They show that a diet containing very little proteid and mostly composed of carbo-hydrates will produce pellagra in time. Experiments were made upon prisoners in the Mississippi State Prison who were promised pardon by the governor if they would undergo the experiment of living on carbo-hydrates for such period as the experimenting officer might determine. The details may be found in the records and reports of the U. S. Public Health Service.

## STATISTICAL DEPARTMENT MOVED.

On December 1, the Statistical Department was moved from the general offices of the Board in to rooms No. 200 and 209 Gallup Block, the same building and on the same floor where the Pathological and Bacteriological Laboratories are situated.

The removal and greatly reduced the crowding in the main office and public better and more work possible. Three statistical clerks who heretofore have been working in the Chamber of the House of Representatives were brought immediately under the supervision of Mr. Chas. Carter, Director of Vital Statistics, and Mr. Carter and the clerk removed from the main office. The end of the last year will surely show that this is a very great improvement for the public health section of Indiana and a further improvement was the change of the Assistant Secretary into the main office. The removal of the cases which were used for vital statistical purposes greatly increased the space, giving an increase of room which was utilized as stated.

### EAST CHICAGO WATER MATTER.

The order made by the Board at its last regular meeting, October 15 to the East Chicago and Indiana Harbor Water Company was duly issued, and response received that the said company would be on hand December 1 to show cause why the State Board of Health should not issue an order requiring the installation of a filter plant. On October 15 a letter was received from Pres. C. L. Kirk of said water company giving the information that he would attend the special meeting of the board and respond to its request. On November 28 due notice was received at this office that the East Chicago and Indiana Harbor Water Company had filed in the office of the Public Service Commission of Indiana surrender of its license, permit or franchise granted to said company by the cities of East Chicago and Indiana Harbor, both cities in Indiana. Upon consultation with the Attorney General I was informed this was equivalent to an appeal to a higher court and that the State Board of Health would probably have nothing more to do with the matter. Further, the Attorney General advised that the special meeting be abandoned, and no action taken until the next regular meeting, January 14, 1916, and then he thought the board should enter a formal condemnation of the water supplied to its patrons by the East Chicago and Indiana Harbor Water Company and appoint a date about six months in the future when the said water company would be heard in argument why the State Board of Health should not issue an order requiring the installation of a filter plant. He explained this should be done in order to keep the State Board of Health in legal connection with the case until it would be finally decided.



by the courts whether or not the Attorney General's ruling as expressed above would stand. If the courts should rule that the State Board of Health had not lost jurisdiction by the appeal to the Public Service Commission, then it would be in an unquestioned position to take proper action in accordance with the statutes.

#### REPORT OF A SANITARY SURVEY OF MUNCIE, DELAWARE COUNTY, INDIANA.

This report is by Asst. Surgeon Howard F. Smith and Sanitary Chemist, J. A. Craven, of the U. S. Public Health Service. These gentlemen are attached to the U. S. Public Health Service Ohio River Investigation at Cincinnati, Ohio. The survey was made in accordance with the request of the city authorities and also the merchants' association of Muncie. The report covers 18 typewritten pages. It is quite unnecessary to make a review of this survey because the entire report should be studied if its true import and worth is to be appreciated. However, it may be said that the report is not at all complimentary and yet is far from being a condemnation in any degree of the city of Muncie.

#### RURAL SURVEYS.

A sanitary survey of the farms of the following counties was made during the last quarter. The counties were: Ohio, Union, Scott, Blackford. Mr. Haynes Freeland made the survey of Union county and Mr. George Shea the surveys of Scott, Ohio and Blackford counties. These men were thoroughly instructed in their work and supplied with score books and trained in scoring until they were quite uniform in their work. Every farm house in the counties named was visited and duly scored, with the result that some very important sanitary discoveries were made and we now have the data and the facts which explain the prevalence of typhoid fever upon the farms and also the prevalence of consumption and so called stomach trouble. The detailed and complete account of this survey with the results obtained will, of course, be published in the annual report of the board and need not be further mentioned here.

#### VISITS OF THE SECRETARY.

*October 12, Marion.*—This visit was made on account of "Health Week" in Marion. A special invitation was received

from the health officer, Dr. Nettie B. Powell and also the mayor, Hon. J. O. Batchelor. I took the public health exhibit with me, spent two days in Marion and in that time delivered nine public talks. The newspapers gave the work admirable publicity, the public attendance upon the exhibit and lectures was very good and I feel confident that progress was made.

*October 14, Lafayette.*—I had long promised the management of Hope Hospital and also the health officer of Lafayette, that I would speak to the nurses and that in company with the health officer would make certain inspections of Lafayette. Upon arrival, I was met by Dr. D. C. McClelland; alley and garbage inspections were made and a report was made, and in addition the nurses at Hope Hospital were addressed.

*October 28, Lafayette.*—A return visit to Lafayette was made on account of an invitation from Pres. Stone to address the students of the college in regular convocation. It presented an admirable opportunity to tell the young men desirous of gaining information about the work of the State Board of Health and to talk to them about personal sanitation. My lecture was well received and the thanks of the faculty were given.

*October 22, Chicago.*—This trip to Chicago was made on account of a conference with the Committee of the American Medical Association in regard to a program for public education in hygiene and preventive medicine. The members of the committee were: Dr. Fred R. Green, Secretary of the American Medical Asso., Dr. S. J. Crumbine, Secretary of the Kansas State Board of Health, Miss Johnson of Watertown, New York, and myself. We worked all day and think we produced a syllabus or program for the use of public societies which will in the end help onward very materially the public health cause. In due time this syllabus or program will be printed by the American Medical Association and this Board will be supplied with enough copies to cover the State of Indiana. The number desired is estimated at 20,000.

*October 31, Richmond.*—The annual meeting of the State Charities Association occurred at Richmond on this date and special provision was made on the program for representation of the work of the State Board of Health. For this purpose both Dr. King, Assistant Secretary, and myself visited Richmond and stayed throughout the meeting. Both of us gave public addresses, Dr. King's subject being, "A decadent County" in which he told the story of his sanitary investigations in Crawford county which have already been told in our report. For my part I spoke upon

"Rural Hygiene." Both of our lectures were illustrated by lantern and seemed to be well received and a vote of thanks was given to us.

*November 15, Orleans.*—The town health authorities and an organization of citizens held a "Special Congress" for five days and a special invitation was given to the State Board of Health to take part. In consequence Mr. Barnard, Dr. King and myself visited Orleans on different days, all of us making lectures and public talks in the interest of the public health. I believe our efforts were attended with good results.

*November 23, Delphi.*—The Oracle Club of Delphi, composed of prominent citizens extended an invitation for a visit from the State Board of Health, having in view the better sanitation of the city. With the health officer, Dr. W. R. Quick, I made a thorough sanitary survey of the city, reported the same to a special meeting of the mayor and council and in the evening lectured to an audience which filled the Christian Church to overflowing. I believe this visit was attended with good results for the public health cause.

*November 26, Evansville.*—The Southern Indiana Teachers' Association held its annual meeting at Evansville for three days ending November 26. Upon invitation of this association I visited Evansville and delivered a public address upon the usual subject of the public health and the state board of health and its work. The address was well received and a vote of thanks given.

*December 7, Bloomington.*—This visit was made for the purpose of addressing the students of Bloomington University upon the subject of vital statistics. An audience of 600 was present and they were directed by the faculty to take notes and to make a regular study of the lecture that was delivered.

*December 13, Kalamazoo.*—The Kalamazoo Academy of Medicine has a membership in three Michigan counties, all of them bordering on Indiana, and therefore coming in close sanitary contact with our state. Upon invitation of this association I went to Kalamazoo and there met 111 Michigan physicians, Drs. Vaughan and Kellogg of the State Board of Health and its secretary Dr. Burkhart. One afternoon session was given up to the discussion of sanitary subjects with special reference to the relationship of the two states, namely, Indiana and Michigan from the sanitary standpoint.

*December 26, Washington.*—This visit was made according to the order of the Board to represent it at the second Pan-American Scientific Congress and to read a paper before Section 8 which section was devoted to the public health and medical science. The program extended over two weeks but I remained during the week ending December 31. It would be quite superfluous to here tell of the enormous amount of work done in this section. I found myself on the program Thursday a. m., December 30, with Mr. Fred Olmsted, landscape architect and Mr. John Nolen, another well known landscape architect, and Mr. Richard B. Watrous who has given much time and attention to rural affairs and betterment. The subject of my address was "Rural Hygiene." On the afternoon of December 30, section 8 was devoted entirely to vital statistics. Papers were read by Dr. Cressy L. Wilbur, Dr. Wilmer R. Batt, Dr. John S. Fulton, Dr. Wm. H. Guilfooy, Dr. Chas. V. Chapin and Dr. Pedro S. Fonseca. I do not believe that I ever attended a more satisfactory and profitable conference. Surgeon General Gorgas of the U. S. Army was the chairman of this section.

#### REPORT OF VISITS, INSPECTIONS AND FIELD WORK BY THE ASSISTANT STATE HEALTH COMMISSIONER IN THE LAST QUARTER OF 1915.

October 4—Crothersville to confer with the School Board and local health officer in regard to an outbreak of diphtheria. With the assistance of the health officer and the physicians of the town cultures were taken from the throats of all the school pupils and forwarded to the State Board of Health laboratory. All pupils who were found to be in any degree ill or who were found to have inflamed throats were sent home to be retained until a report was received from the laboratory. By carrying out the plan agreed upon at the time of this visit and conference the outbreak was promptly controlled.

October 12—Frankfort to address the Parent-Teachers organization of the Second Ward schools. Also made an inspection and survey of the Second Ward school building, and a survey of the new high school building.

October 19—Charlestown to confer with the trustee and advisory board of Charlestown township relative to the proposed site for the new school building. The site was approved. There has been much contention in regard the construction of the new

school building at Charlestown. The contractor Isgrigg & Son of Greensburg has forfeited his contract bond, the State Board of Education has refused to grant the commission to the high school and the school building will be closed by the State Board of Health at the end of the present school year.

October 20-22—In Crawford county to secure photographs and statistics to be used in connection with an address before the State Conference of Charities and Corrections.

October 29—Boonville to testify in the Circuit court in the case of the Trustee of Pigeon Township vs. the Advisory Board, wherein the trustee sought to mandate the advisory board to make an appropriation for a new school building at Selvin. The court decided in favor of the trustee and ordered the advisory board to make the necessary appropriation.

November 1—Richmond to give an address before the State Conference of Charities and Corrections on Tuberculosis in a Rural County.

November 9—Gilead to make a test of the heating and ventilation in the new school building.

November 12—Orleans to assist in the program at a Community Institute under the auspices of Indiana University. Three addresses were made.

November 16—Fort Wayne. Made a sanitary survey of Ft. Recovery Camp, the Allen county cottage sanitarium for the treatment of tuberculosis. Also made a sanitary survey and inspection of the new Harmar Street school building in Fort Wayne.

November 17—Columbia City to inspect the new heating and ventilating system and other sanitary improvements in the West Ward grade building and high school building.

November 22—In company with Edgar A. Perkins of the State Industrial Board and J. J. Walsh, State factory inspector I visited South Bend and Elkhart to make a sanitary survey of a number of brass foundries in the two cities. We also visited Warsaw and inspected the Opera House.

December 2—New Castle to give an address before the New Castle Women's Club.

December 3—Bloomfield and drove from Bloomfield to Scotland to make an inspection and test of the heating and ventilation of the Scotland school building.

December 6—Terre Haute accompanied by the School Board of Terre Haute made a sanitary survey and inspection of the

Wiley school, the Montrose school, the Cruft school, the Parsons school house site and the Lincoln colored school.

December 10—La Gro to give an address at the dedication of the new La Gro school building.

December 13—Columbia City to make a final inspection and test of the heating and ventilation in the West ward grade building and high school building. This is the first case in the State of Indiana in which waste steam from municipal lighting plant is utilized for heating the city school buildings.

December 23—Kokomo to make a test and inspection of the heating and ventilation of the Center township school building. On the same day visited Fairfield to make an inspection and test of the heating, ventilation and toilet equipment in the Taylor township consolidated school building.

The report of the secretary and assistant secretary were read and ordered spread of record.

## REPORT OF THE WORK OF THE FOOD, DRUG AND WATER LABORATORIES OF THE STATE BOARD OF HEALTH FOR THE QUARTER ENDING DECEMBER 31, 1915.

### REPORT OF MR. BARNARD.

The work of the last quarter has for the most part followed its established routine. We have given special attention however to several matters to which I call your attention.

Mr. McAbee has prepared the copy for the Fourth Edition of Medical Frauds and we have arranged with Major Peyton at the State Reformatory to print an edition of fifty thousand at no cost to the Department save the stock. This edition will soon be available for distribution.

Inspector Cohn has completed his study of prescription balances, apothecaries and metric weights. This work has taken him a year and he has visited 876 drug stores. The conditions he reports are most interesting. In brief they are as follows: He tested 10,921 apothecaries weights. Of this number but 659 were accurate; 1828 were condemned outright; 6,335 were light and 1990 heavy. He tested 2,033 metric weights; 311 were accurate; 62 were condemned; 1040 were light and 617 heavy.

Of the 871 balances inspected but 441 were found to be in good condition; 340 balances were in fair condition only and 90 or over 10% were condemned outright.

From the time we began our sanitary inspection work we have found the condition at hotels and restaurants most unsatisfactory. The average hotel, especially the country house is unsanitary from cellar to garret. Conditions are slowly but gradually improving. At the request of the Indiana Hotel Keepers Association we are now arranging to make a very careful study of the conditions under which every hotel in the state is operated. We have prepared a special inspection card which will take into consideration not only the general condition of the building, the character of the kitchen and dining room, but as well, the condition of the plumbing, the ventilation of bed rooms, the facilities offered employees for keeping clean and living decently. We shall also observe whether or not the sheet law which requires sheets of certain size and length to be used and to be changed after each occupant is being obeyed. Inspector Cohn will also point out the necessity for compliance with that portion of the law which prohibits the employment of diseased persons and will endeavor to get each hotel keeper to adopt a system of medical inspection which will insure him that his help are free from disease.

We have spent years in an endeavor to improve the conditions at the dairy. We are making slow but gradual progress. A new condition has arisen in the dairy world which is helping our work very materially, and that is the operation of the large so-called centralizing plants at which cream collected from thousands of farmers is brought and worked into butter. The farmer's wife is going out of the business of making butter and is adopting the easier and more profitable plan of selling the butter fat and feeding the skim milk on the farm.

The butter, ice cream and milk men of the state have formed an organization known as the Indiana Association of Manufacturers of Dairy Products. They have asked our department to join with them in an effort to improve the quality of Indiana butter. We have had several meetings with them and find them enthusiastic and confident that it is possible not only to stop the shipment of low grade cream, but to improve the quality of Indiana butter so that it will command one or two cents more per pound than at present. I attach a notice to Farmers, Butter Makers and Dealers in Dairy Products which establishes grades for cream with the recommendation that it be adopted by the Board.

In November I attended a meeting at Washington of the National Food Standards Commission and on my return found

the city had been suffering from a gastro-intestinal epidemic. Unfortunately but few samples of the water had been taken by our laboratory during the prevalence of the epidemic, and I have never felt that we had sufficient data at hand to warrant the drawing of any conclusions as to the cause of the trouble. I attach herewith a report of the work done at that time and later. It will be noted that while the few samples collected were moderately high in bacterial count and contained the colon bacilli in a large percentage of the samples, later analyses showed the water to be satisfactory.

During the last week of December and the first week in January the water again showed higher bacterial counts and gas forming bacteria in most 10 c.c. samples. An explanation of this bacterial condition may be found in the extreme high water during this period. The flood conditions produced a very turbid water and at the same time water which could not be treated as heavily with chlorine without producing an unpleasant taste as under a normal stage of flow.

It is increasingly apparent that more prosecutions are necessary than have been filed during the past few years. We are finding for instance that meats and sausages quite commonly contain sulphites and a large excess of starch. For a number of years no sulphites were used and the practice of adding cereal to sausage has until recently not been commonly followed since the food law came into effect. We have successfully prosecuted a number of cases involving these fraudulent practices and are filing more constantly.

Upon the invitation of the Indiana Hotel Keepers' Association, I addressed their convention in November on the proposition of the medical inspection and physical examination of all employees. My recommendation was enthusiastically received and I was asked to attend a meeting of the National Congress of the American Hotel Associations at Chicago. I there discussed the same proposition as at Indiana and I am very much gratified to report that this National Association representing as it does, all the important hotel keepers of the country, was unanimous in its acceptance of the idea of physical and medical examination.

I attach herewith a copy of the report adopted by the Congress.



## BRIEF ACCOMPANYING.

*Notice to all Employees of Labor Engaged in the Production, Preparation, Manufacture, Packing, Storage, Sale, Distribution and Transportation of Food.*

The Sanitary Food Law passed in 1909 in stringent terms prohibits the employment of diseased persons in the production or handling of the food supply. Because of the lack of general information on the subject and of a means by which the law could be adequately enforced, the past six years have been spent in building up a demand for law enforcement rather than enforcing the provisions upon an uninformed public.

The time has come, however, when I believe it is possible without friction and without great difficulty to ask employers of labor to comply with the law. I may say that the National Association of Master Bakers two years ago went on record as being in favor of medical inspection. I had the pleasure at the meeting of the National Confectioner's Association at French Lick a year ago of securing their unanimous adoption of the proposition. For several years the Pennsylvania Railroad has been requiring medical inspection of employees every three months. Medical Inspection with most excellent results was practiced at the Canal Zone during the construction of the Panama Canal. The New York City Board of Health is now enforcing it in the largest city in the world. The Indiana Hotel Keepers Association is demanding it.

At a meeting of the Indianapolis restaurant men a strong resolution was adopted asking for the enforcement of the law. More than that, people generally now know of the law. It is time to strike and I therefore recommend the passage of the attached order. Attached to the order is a form of certificate which I believe may properly be used in this work. It is a matter for the State Board of Health to determine the method by which the necessary records shall be kept; whether or not the certificates should be in duplicate or triplicate, one copy being held by the person examined, one by his employer and one by the local health officer. That however, is a matter of detail. I believe the State Board of Health, using the facilities at its command for securing cheap printing may well agree to supply these certificates for the use of each health officer.

**NOTICE TO ALL EMPLOYERS OF LABOR ENGAGED IN  
PRODUCTION, PREPARATION, MANUFACTURE,  
PACKING, STORAGE, SALE, DISTRIBUTION  
AND TRANSPORTATION OF FOOD.**

In conformity with Section 8, Chapter 163, Acts 1909, which forbids the employment of persons affected with any venereal disease or other infectious or contagious disease in any industry which has to do with the production or distribution of food, all such employers are hereby ordered to require of each employee a certificate signed by a reputable practicing physician which shall declare such employee to be free from infectious or contagious disease.

It is suggested that the local health officer be requested to provide such certificates and that no person be employed who cannot show a certificate. The form of certificate shown below will be held to meet the requirements of the law and the order of the State Board of Health.

<p>Name of firm or employer.....</p> <p>I have examined.....</p> <p>and find (her) (his) physical condition to be as follows:</p> <p style="text-align: center;">I hereby certify that (he) (she) is not afflicted with any contagious or infectious disease and that (he) (she) is a suitable person to work with the food supply.</p> <p>Dated this                      day of                      191                      .</p> <p style="text-align: right;">.....M. D.</p> <p style="text-align: center;">This certificate is in force one year from date but becomes void upon the contraction of disease prior to that date.</p>
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INDIANA STATE BOARD OF HEALTH,  
By John N. Hurty, M. D.  
State Health Commissioner.

The health inspection of the hotel employes who handle food was presented to the National Congress of the American Hotel Associations by Dr. H. E. Barnard, state food commissioner for Indiana.

A committee consisting of Geo. H. Woolley, representing the State Hotel Association of Michigan, Henry W. Lawrence, repre-

senting the Hotel Association of Indiana and L. Fred Klooz, president of the Pennsylvania State Hotel Association, were appointed to consider the matter, and the following is a copy of their report.

CHICAGO, Dec. 11, 1915.

*To the Chairman and Members of the National Congress of American Hotel Associations:*

The committee appointed by your chairman at the afternoon session yesterday to prepare a suitable memorial bearing upon the very enlightening as well as eloquent and instructive address of Dr. Barnard upon the subject of "Health Inspection of Hotel Employees Who Handle Food", begs to report as follows:

*Whereas*, Dr. H. E. Barnard, state food commissioner for Indiana, in his address before this Congress has so graphically set forth the urgent necessity for some steps being taken looking to the more careful consideration of the health of our employes but more particularly to our guests resultant upon a lack of inspection and elimination of such dangerous elements in our food preparations as well as in other departments of our hotels, and

*Whereas*, Dr. Barnard, by his convincing argument and startling array of facts and personal experiences has aroused in us a desire to throw around our guests all possible safeguards to help insure their health and peace of mind.

*Therefore*, be it resolved, that it is the sense of this Congress that action be taken upon the matter and that the members of both state and city associations carry back to their homes some concrete evidence of a desire on our part to co-operate with the health authorities in every locality looking toward the speedy elimination of the evils spoken of by Dr. Barnard, and to this end we propose to this Congress that the members urge upon those charged with the enforcement of public health ordinances where now enacted the necessity for action in this matter and co-operation in the examination of employes to determine their fitness or unfitness for their work, and in municipalities where no ordinances of this nature are in effect, we suggest that the city or other authorities be communicated with, and requested to incorporate in their health regulations some such restrictions as are now carried in the health ordinances of New York City. The important sections, of which are respectively numbered 32 and 33 and are as follows:

Regulation 32, Health of Employes:

No person who has any infectious or venereal disease shall be permitted to prepare or handle food or drink or any utensils used in the preparation or handling of same.

Regulation 33, Habits of Employes:

All persons preparing or handling food or drink shall be cleanly in their habits, and must wash their hands before beginning work and after visiting toilet.

GEORGE H. WOOLLEY, Chairman.  
HENRY W. LAWRENCE,  
L. FRED KLOOZ.

The above report of Mr. Barnard was accepted and approved and ordered spread on record.

NOTICE TO DEALERS IN FOOD AND DRINK AND TO COLLECTORS  
AND DEALERS IN SECOND HAND BOTTLES AND  
CONTAINERS.

In regard to this matter Mr. Barnard reports as follows: At the request of the Indiana State Bottlers Association, many milk men and all the inspectors for the department the attached order has been prepared and is respectfully recommended for passage. With this order in force it will be possible to eliminate the uncleanly methods frequently employed in handling empties such as soda bottles, milk bottles, etc. The requirements as set forth in the order are certainly reasonable and may be complied with without inconvenience. I believe that that part of the order of special importance to junk dealers, if properly enforced by local officials and inspectors will materially change the conditions under which second hand bottles are now handled. The order referred to reads as follows:

*Ordered:* All packages and containers designed to be refilled with food or drink shall when emptied be cared for in such a manner that they may not become foul or contaminated and that they may be readily and thoroughly cleaned before use. It is understood that such care will require milk bottles, ice cream cans, etc., to be washed and rinsed with water as provided by Section 1, Chapter 69, Acts 1913, and that beer, soda and other bottles intended to be refilled shall when emptied be returned to the case with neck down and kept in a clean place until collected or shipped to the owner.

Junk dealers and dealers in second hand bottles are ordered not to collect or buy bottles or other packages that may be used as containers for food or drink that are not clean or that have been stored under unsanitary conditions.

After discussion, the above order was adopted unanimously and ordered promulgated.

NOTICE TO FARMERS, BUTTER MAKERS AND DEALERS IN DAIRY PRODUCTS.

Mr. Barnard recommended the passage of rules which would define first-grade, second-grade and illegal cream. The argument for the same is presented in Mr. Barnard's communication herewith.

*First Grade Cream.*—First grade cream is cream that is clean to the taste and smell, slightly sour, containing not to exceed 5.10% acid and above 30% butter fat, free from lumps, curd, dirt and all foreign matter. Butter made from first grade cream should score not less than 89.

*Second Grade Cream.*—Second grade cream is cream that will not produce butter scoring 89 or better, that is above 5.10 per cent in acid or that has weedy or other undersirable flavor or odors.

*Illegal Cream.*—Illegal cream is cream that is very old, rancid, moldy, yeasty, or curdy, that is filthy, dirty or decomposed or is contaminated with a filthy, diseased, putrid or rotten animal or vegetable substance, that is the product of a diseased animal, that is separated with an unclean separator or that is stored, handled or transported in unclean cans, or that has been produced, handled, separated, stored or transported in violation of the State Pure Food and Sanitary Laws. The sale, purchase or manufacture of such cream is prohibited by law.

Unless otherwise designated all cream sold or shipped for manufacture into butter shall be held to be first grade cream and all contracts which specify a price for butter fat shall be construed to apply only to first grade cream.

County, City and Town Health Officers, State Food Inspectors and all other officers whose duty it is to enforce the Pure Food Law, will be governed by this notice.

The above paragraphs were, after discussion, unanimously adopted and made additions to Rule 1, Section B—Milk and its Products, subsection "b" Cream, of the Rules of the Indiana State Board of Health Regulating Minimum Standards for Food and Drugs, Defining Specific Adulterations, and Declaring the Proper Methods of Collecting and Examining Drugs and Articles of Food, as the same appear in the minutes of the Board at its regular meeting July 2, 1915.

QUARTERLY REPORT OF THE BACTERIOLOGICAL AND PATHOLOGICAL LABORATORY.

The laboratory has made an unusually good record in sputum examinations during this first quarter. 1242 specimens were examined and over 30% of these were found to contain tubercle bacilli. A 10% additional number were found to contain a few acid fast bacilli. These were reported as suspicious and another specimen was requested.

Over 30% of the diphtheria specimens sent in for diagnosis were found to contain diphtheria bacilli.

Of the 4670 swabs taken in school inspection work, 227 or 5% were found to contain diphtheria bacilli. It is the undiscovered bacilli carriers that make it impossible to stop an epidemic of diphtheria in a school by diphtheria quarantine alone, but by this routine method of examination school epidemics have been successfully combatted.

Of 94 pathological specimens sent in for examination 33 or 35% were found to be carcinoma, while only 4 were found to be sarcoma. This is the usual ratio of carcinoma to other pathological conditions found at operation.

Five thousand four hundred fifteen of the 10,953 outfits sent out during this quarter were diphtheria epidemic outfits. We have devised a new standard outfit for this purpose consisting of 50 tubes, 50 cards, tongue depressors, rubber bands, directions, and a numbered list for names of patients from whom swabs are taken. These are neatly packed in a corrugated paper box and are to be returned by express prepaid, which is much less expensive than returning by mail.

Thirty-five patients have been given the Pasteur treatment and almost 50% of these were from Marion county, where the rabies situation continues to be serious with nothing being done to abate the danger.

CONCERNING THE QUESTIONS CONNECTED WITH THE WATER  
SUPPLY OF THE EAST CHICAGO AND INDIANA HAR-  
BOR WATER COMPANY.

The secretary stated that the special meeting ordered for December 1 at the last regular meeting of the Board, which was for the purpose of hearing reasons, if any, from the East Chicago and Indiana Harbor Water Company why they should not be ordered to install filtration works was duly called and notice

given. Replies were received from the said company and also from the authorities of East Chicago and Indiana Harbor that they would attend the meeting and make response. On Monday, November 29, the said water company surrendered its franchise to the Public Service Commission of Indiana. Inquiry was made of the attorney general as to the meaning of this. He gave it as his verbal opinion that the surrender of the franchise was equivalent to an appeal to a higher board and therefore the State Board of Health would be released. He further advised it would be well to abandon the special meeting called for December 1. Accordingly due notices were sent out to all concerned and the meeting was abandoned. The Attorney General further advised that as the question whether or not the appeal to the Public Service Commission would entirely relieve the State Board of Health was not entirely settled by his opinion, it would be well for the State Board of Health at its next meeting, if it pleased, to adopt an order of condemnation of the sanitary and healthful condition of the water supply of the East Chicago and Indiana Harbor Water Company and also to formally appoint a day about six months in the future and give due notice that the State Board of Health would hear any reasons or causes why the State Board should not adopt an order and enforce the same requiring the installation of filtration works by the said water company.

Following the discussion of the above report, the following order of condemnation was adopted:

#### ORDER OF CONDEMNATION.

The Indiana State Board of Health, being convinced on account of surveys, investigations and analysis that the water supplied to the inhabitants of East Chicago and Indiana Harbor by the East Chicago and Indiana Harbor Water Company is impure, polluted, unhealthful and unfit for domestic purposes, therefore the same is condemned and declared unlawful according to the statutes.

In accordance with the further recommendations of the attorney general, and after discussion the following order was adopted:

*Ordered:* The Indiana State Board of Health will meet July 14, 1916, in order to give a hearing to the East Chicago and Indiana Harbor Water Company and all others concerned why the State Board should not issue,

as authorized in the statutes, an order commanding the installation of filtration plant by the said company.

*Ordered:* The annual conference of State Health Officers shall be held May 2 and 3 at Indianapolis and the secretary shall prepare a program.

*Ordered:* That any member of the State Board of Health consenting to attend the midwinter Conference on Medical Education, Legislation and Public Health may do so and act as a delegate from the State Board. The said conference to be held in Chicago, Monday and Tuesday, February 7 and 8, the expenses of said delegates to be paid out of the general fund of the board.

The following schoolhouses were condemned:

Gilboa School, Gilboa township, Benton County.  
 District No. 1, Owen Township, Clark County.  
 District No. 4, Owen Township, Clark County.  
 Yale District School, New Castle Township, Fulton County.  
 District No. 4, Erie Township, Miami County.  
 Macy School, Allen Township, Miami County.  
 District No. 1, Erie Township, Miami County.  
 Albion School, Noble County.  
 Pleasantville Schoolhouse, Jefferson Township, Sullivan County.  
 District No. 1, Clay Township, Dearborn County.  
 District No. 8, Sparta Township, Dearborn County.

*Whereas:* The said schoolhouses as duly entered herewith and for which each individual and separate schoolhouse a sanitary survey has been made and filed in the office of the State Board of Health; and

*Whereas:* Each individual and separate schoolhouse as above named has been judged to be insanitary and unfit for school purposes, the same are herewith condemned and the authorities in charge of said schoolhouses are forbidden according to law to use, or occupy or permit to be used said schoolhouses for school purposes after June 15, 1916.



**REGULAR QUARTERLY MEETING OF THE INDIANA  
STATE BOARD OF HEALTH FOR THE FIRST STA-  
TISTICAL AND SECOND FISCAL QUARTER, BOTH  
ENDING MARCH 31, 1916.**

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APRIL 14, 1916.

Called to order at 1:00 p. m. by President Boyers.

Present: Drs. Boyers, Sutton, Freeland, Kern, Hurty.

The president announced the meeting was regular and was for the purpose of attending to the business of the first statistical and second fiscal quarter and such other business as might come before the board.

The minutes of the last regular meeting held January 14, 1916, were read and approved.

**REPORT OF SECRETARY FOR THE SECOND FISCAL  
AND FIRST STATISTICAL QUARTER, BOTH END-  
ING MARCH 31, 1916.**

In the preceding quarter many epidemics were reported as stated in my previous quarterly report and I am glad to be able to report that during the last quarter the epidemics were few with the exception of measles. During March measles was unusually prevalent over the state. The disease in some places was so prevalent as to force the closing of schools because of non attendance of pupils. Smallpox has continued during the quarter but very much diminished as compared with the preceding quarter. Scarlet fever has been reported as really epidemic in only seven places compared with twenty-three places in the preceding quarter.

An interesting incident has occurred in Kosciusko county at the town of Winona Lake. Six samples of water were analyzed in the laboratory which were taken from Center lake and from various hydrants in the city of Warsaw and in the town of Winona Lake. These were duly reported upon and the attorneys for the city of Warsaw and the town of Winona Lake entered objections to the same for various reasons which are formally set forth in a petition of the Winona Lake Lighting and Water Co. to the Public Service Commission of Indiana. One instance will make this matter clear. Sample No. 1, water taken from Center lake, Warsaw, Indiana, the objections laid down by the attorneys were: "In

securing this sample of water the instructions of the State Board of Health were not filled in this: First—The lake was frozen over and a hole was cut in the ice, the water was dipped into half gallon pitcher and was subsequently poured into the bottle; Second—The water was taken from the surface where the floating ice was and was neither taken from mouth of the intake 10 or 12 feet below the surface, where the water enters the system of the Petitioner Company; Third—nor was such sample taken from a foot or more below the surface of the water; Fourth—not was it received directly into the containing vessel.” The relation of this incident will show how very necessary it is that the minutest details be followed in all matters pertaining to the work of the laboratory. These details would have been carefully followed had the samples been taken by an employee of the laboratory but the same were taken by the county health commissioner who was deputized to do the work.

#### RULING BY THE ATTORNEY GENERAL.

An important ruling by the Attorney General is here inserted and explains itself.

FEBRUARY 16, 1916.

Dr. J. N. Hurty,  
Secretary, State Board of Health,  
Indianapolis, Indiana.

Dear Sir:

Your letter of the 26th ult., came duly to hand, the same being as follows:

“In two places in the health law mention is made of deputy health officers doing work when the principal, who must always earn his living practicing medicine, could not meet the requirements. Mention is also made in the quarantine law of deputy health officers acting, yet nowhere in the law is there specific authority given health officers to appoint deputies.

“The question is: Have health officers the power to appoint deputies? If they have not, it will be impossible about one-half of the time for them to fulfill the commands of the law and meet the public health requirements.

“If your answer is in the affirmative, a further question will be in regard to payment for services.

“The law provides that counties having not over 30,000 inhabitants may unite with the county seat authorities and appoint one health officer over all and that the expenses shall be prorated. In such instance could not part of the county health appropriation and the city health appropriation be used for payment for services of a deputy? I hope for a very early reply because this matter is pressing in Porter county where the county council and the city authorities of Valparaiso are very desirous of having one officer with a deputy.”

I have given this question considerable thought and have arrived at this conclusion. The law nowhere expressly authorizes a health officer to appoint a deputy. The rule of Common Law is, that every officer, unless forbidden to do so by statute, has the right to appoint a deputy, and I think under this Common Law authority a health officer would have the right to appoint a deputy if he possesses the qualifications the statute requires a health officer to possess. This right, however, would not authorize the deputy to be paid compensation out of the public treasury. Whatever compensation is paid to such deputy must be paid by the principal out of his own purse.

The word "deputy" as used in the health law, in my opinion, must be construed to mean assistant. It is my opinion that a health officer, whenever there is an urgent demand therefor in time of contagion, etc., may appoint assistants, if proper appropriation has been made for the expense of the health officer, and such assistants would be entitled to be paid as part of the expense of such office out of the appropriation therefor.

It is my further opinion that where a county has united with the county seat authority and has appointed one health officer for both, that all expenses should be prorated, including the expense of assistants when necessary.

Yours very truly,

EVAN B. STOTSENBERG,  
Attorney-General.

#### REMY ELECTRIC COMPANY.

The following sanitary inspection of the Remy Electric Company plant at Anderson, Indiana, was made at the solicitation of the president of the Women's Civic Club of Anderson and also of the general manager of the company.

#### SANITARY INSPECTION OF REMY ELECTRIC COMPANY, ANDERSON, INDIANA.

*Inspection made March 2, 1916, by J. N. Hurty.*

Plant covers four and one-half acres of land in the city of Anderson, Indiana. There are twenty-seven buildings of brick, stone, concrete and steel construction. All of the buildings are thoroughly lighted and provision made for good ventilation. Drinking water from a deep well is supplied through bubble fountains. The closets are built overhead in the passage ways. They are roomy, have concrete floors, flush-bowls, porcelain urine troughs, are extra well lighted and ventilated. The total floor area is 140,000 square feet.

A large, well lighted and ventilated social and lecture room is provided with current magazines and newspapers open to employes at all times. This room is available for evening gather-

ings and lectures free of cost to employees. Light, heat and room are supplied free.

There is a rest room for women supplied with first aid equipment. A woman who is a long time employe and timekeeper, has had instruction in giving first aid and is always present ready to give her services. First aid equipment is also supplied for the men. There is no hospital but first aid is at hand and several employes have been instructed in first aid work.

#### EMPLOYEES.

Total number employes is 2,000. The average age of the employes is 30 years. Average age of the males is 32 years, 5 months, of the females 24 years, 5 months. Married males 474. Married females 101. Greatest distance traveled by any employe 13 miles. Travel by employes is by trolley in every instance. 1,339 of the employes live in Anderson. Street cars run within two squares of the plant.

*Health.* No cases of chronic disease are known. No case of typhoid fever or pneumonia known for the last year. Two women, who complain of nervousness fainted, each one time during the last year. Special attention was given to observing the general appearance in relation to health. Not an employe was discovered who did not appear to be in good health.

*Summary.* The Remy Electric Company's plant is modern, is passably sanitary, no sickness exists among employes, sewage disposal excellent, water supply by bubble fountains and pure, and a general appearance of health among employes. The ventilation was not the best, altho facilities for ventilation are excellent, and therefore the management was directed to have better attention given to keeping the employes supplied with an abundance of pure air.

The following tables show the smallpox and typhoid fever status for the quarter:

#### SMALLPOX.

<i>Month.</i>	<i>Cases.</i>	<i>Deaths.</i>	<i>Counties Invaded.</i>
January, 1915.....	528	1	41
January, 1916.....	104	0	14
February, 1915.....	415	1	38
February, 1916.....	114	0	17
March, 1915.....	524	1	42
March, 1916.....	136	1	20
<hr/>			
Total, 1915.....	1,467	3	121
Total, 1916.....	354	1	51

## TYPHOID FEVER.

<i>Month.</i>	<i>Cases.</i>	<i>Deaths.</i>	<i>Counties Invaded.</i>
January, 1915.....	112	34	35
January, 1916.....	104	26	25
February, 1915.....	71	23	26
February, 1916.....	142	31	28
March, 1915.....	101	35	25
March, 1916.....	167	33	23
<hr/>			
Total, 1915.....	284	92	86
Total, 1916.....	413	90	76

## STATISTICAL DEPARTMENT.

The growth of this department continues. The classifications and tabulations are now made for the first time by means of mechanical apparatus which insures greater accuracy than heretofore. The clerks of the office are rapidly becoming familiar and skilled in this method of tabulating. These machines are rented for they cannot be purchased. The firm supplying the same is Tabulating Machine Co., of Washington, D. C., the rent of which is \$45.00 a month. The addition of these machines makes a marked advance in the statistical work of the board. The Statistician has been carrying on an extensive campaign for the more accurate collection of birth certificates. As a result one instance, the most marked in his experience, is that of Allen county where 72 unreported births were discovered. Unreported births were in many counties. I must again mention the advantages accruing to the statistical department on account of removal to special rooms in the Gallup Block.

## VISITS OF THE SECRETARY.

The Secretary made the following visits during the quarter all of which were certainly successful because in each instance resolutions of thanks were passed and also resolutions of confidence in and for cooperation of the State Board of Health.

*January 6, Pendleton.*—Two lectures were made before the high school students and next grades in the afternoon and in the evening an illustrated lecture was given to a general public audience. In both instances the work of the State Board of Health and the prevention of disease were presented.

*January 12, Edinburg.*—A talk was given to the Edinburg high school and to the Women's Civic League and in the evening an illustrated lecture to a general audience.

*January 26, Farmerburg.*—Here a talk was given to the pupils of the schools in the afternoon. Directions and instructions were also given to two physicians in the matter of medical inspection of school children and in the evening I gave a public illustrated lecture in a local moving picture theatre to an overflowing audience. A delegation of forty from the Commercial Club of Sullivan attended.

*February 7, Chicago, South Bend and Elkhart.*—On February 7, according to the order of the board, I attended the annual meeting of the Conference of Medical Education of Public Health of the American Medical Association. This conference was held in the Congress hotel at Chicago. I read a paper upon How Health Officials may secure the Cooperation and Confidence of Political Officials. From Chicago I went to South Bend where I gave an illustrated lecture before the Women's Civic League. This was given in the gymnasium of the Y. M. C. A. to a large audience. From South Bend I went to Elkhart where I made surveys of two country school houses, the same being on record in this office. I also spoke before the high school.

*February 15, Clermont.*—This visit was made to give a talk entitled Health on the Farm before a branch of the Marion County Agricultural Association. A large audience was present filling the church entirely. I had good attention and the usual resolution of thanks and confidence was passed.

*February 15, Terre Haute.*—In the evening of the 15th I read a paper before the Vigo County Medical Society upon Practical Eugenics. This meeting was open to the public and a large audience was present. The following day I spoke before the teachers of the State Normal School and also two public schools.

*February 17, Shelbyville.*—This visit was made to confer with the local health authorities in regard to various conditions and also to make a general address before the Parent-Teachers Club associated with the high school. I also made a special address and talk upon Sex Hygiene to the boys of the high school.

*February 22, Fort Wayne and Kendallville.*—At Fort Wayne I conferred with insurance agents concerning needed legislation with special stress upon the All Time Health Officer problem. At Kendallville I addressed the high school pupils in the afternoon and in the evening gave a general address in the church to a general audience.

*February 29, Hillsboro.*—This visit was made to give an address in the afternoon to the local Parent-Teachers Club and Civic

Association. The high school was dismissed to attend the lecture and fully one hundred farmers and wives together with inhabitants of the village of Hillsboro were present.

*March 2, Anderson.*—At Anderson I conferred with the county authorities in regard to the All Time Health Officer bill and also made a sanitary survey of the Remy Electric Company plant, the same is presented in this report in full.

*March 7, Winchester.*—Baby and Public Health Week was being held at Winchester on this date and I delivered a talk before the high school and in the evening before a large public audience in one of the moving picture theatres which had been donated by the proprietor for public benefit.

*March 14, Bloomington and Lafayette.*—My visit to Bloomington was to talk before the high school pupils and to make a lecture in the evening to a general audience. These lectures were incident to the Community Institute which was being held at Bloomington. From Bloomington I left for Lafayette direct where Baby Week was being held. There our exhibit was placed on view in the new high school building. In the afternoon I spoke to the students of the high school and in the evening in the same auditorium at the high school building spoke to a general audience. The evening audience was not large but it seemed to be appreciative.

*March 22, Vincennes.*—On account of Baby Week I accepted an invitation to visit Vincennes. I made an address in the afternoon to the high school students and upon the usual subject of the work of the State Board of Health. In the afternoon I spoke to the local Ladies Association upon Domestic and Sex Hygiene. In the evening I gave an illustrated lecture to a large public audience upon Child Welfare and Disease Prevention.

*March 29, Columbus.*—Community Institute and Child Welfare Week was being held in Columbus and I visited the city upon invitation to be helpful to any degree possible. I made three talks, one before the general institute in the afternoon, one to the pupils of the schools in the afternoon and again an illustrated talk before a general audience gathered on account of the institute.

#### VISITS OF ASSISTANT SECRETARY.

*January 3.*—To Frankfort to inspect two new school buildings in Union Township.

*January 12.*—To Winchester to speak before Parent-Teachers meeting of Stoney Creek Township.

*January 21.*—Flora to inspect new school building. Rockfield to make a sanitary survey of school building.

*February 9.*—Fowler to inspect school building at Gilboa Center and to testify in the Benton Circuit Court.

*February 10.*—Auburn to attend Community Institute and give three addresses.

*February 11.*—Macey to make sanitary survey of school building. Erie Township, Miami County to make sanitary survey of two school buildings. Walkerton to inspect new school building.

*February 17.*—Greencastle to inspect High school building.

*February 18.*—Southport to meet Trustee and Advisory Board of Perry Township.

*February 22.*—Albany to inspect new school building. Shideler to make sanitary survey of school building.

*March 8.*—Bicknell to give addresses in connection with Community Institute.

*March 14.*—Pierceton to inspect school house sites.

*March 15.*—Delong and Leiters Ford to make sanitary survey of school buildings.

*March 16.*—Monterey to inspect new school building.

*March 17-18.*—Lafayette to assist in program of Baby Week.

*March 21.*—Muncie to inspect new high school building.

*March 27.*—Connersville to inspect 8th Street and Maplewood school buildings.

#### REPORT OF THE ASSISTANT SECRETARY.

I would respectfully recommend the following action by your Board:

*First.*—The State Board of Health has never by rule or order required that plans and specifications for new and remodeled school buildings be submitted to the State Board of Health for approval or disapproval as to the sanitary features involved. The Health Law of 1909 gives the State Board of Health power "to regulate and prescribe the character and location of plumbing, drainage, water supply, disposal of sewage, lighting, heating and ventilation and all sanitary features of all public buildings and institutions." As a matter of fact, most of the architects in the State have been cooperating with the State Board of Health and



have been complying essentially with the Rules of the State Board of Health, wholly as a matter of cooperation. School building activities in the state and school sanitation has reached such importance, however, as to make it advisable for the State Board of Health to exercise complete and positive jurisdiction as contemplated in the law. I recommend therefore, that the Board adopt an order requiring that all plans and specifications for school buildings, whether new or remodeled and for public buildings of all kind, be submitted to the State Board of Health for inspection and approval as to sanitary features before the same are finally adopted and that when such plans and specifications are satisfactory and are shown to comply with the rules and requirements of the State Board of Health, the same shall be officially approved.

*Second.*—I recommend the adoption of a condemnation order against the following school buildings to wit:

Shidler Joint School { Hamilton Township } Delaware County.  
                                   { Union Township }  
 District No. 1, Orange Township, Rush County.  
 District No. 2, known as the Goudy School in Orange Township, Rush County.  
 District No. 3, Orange Township, Rush County.  
 District No. 10, Tippecanoe Township, Marshall County.  
 District No. 9, Fairfield Township, Tippecanoe County.  
 The Delong School in Aubbenaubee Township, Fulton County.  
 District No. 2, Vernon Township, Washington County.

*Third.*—I recommend that action on the survey of the Woodside school building in the City of Frankfort, Clinton county, be postponed until later meeting of the Board. This school building is in bad condition and should be condemned, but the City of Frankfort has recently constructed both a new high school building and a new grade school building in the Third Ward. The School Board is therefore unable financially at this time to take up the Woodside school building. A sanitary survey in each of the above schools is herewith attached.

*Fourth.*—I recommend an extension of condemnation in the Clarkhill school building, Tippecanoe county, as requested in the letter of the trustee herewith attached.

*Fifth.*—About a year ago acting under orders from the State Board of Health, the school board of Greencastle made extensive improvements in their high school building. These improvements included a new heating and ventilating system, the installation

of a flush toilet system, drinking fountains and interior decoration of the entire building. On agreement between the school board and the Secretary of the State Board of Health, the school board was not required to change the windows in this building so that class rooms would be lighted from one side only, until this year. Comes now the school board of Greencastle and asks to be further relieved from changing the windows in the present high school building for the reason that they find it absolutely necessary to make extensive improvements on their Second Ward school building which with improvements necessary in other school buildings of the city will require all their financial resources at the present time. The financial statement of the school board of Greencastle is as follows:

Value of taxable property.....	\$2,200,000
Bonding limit.....	44,000
Present indebtedness.....	8,000
Necessary improvements.....	6,000

The great need in Greencastle is a commodious high school building which is the only building plan that will relieve their congestion. The school board is working to this end and for this reason desire to save their financial resources as far as possible. I recommend that the State Board of Health relieve them of the necessity of further improvements at their high school building at the present time.

This report of the Secretary and Assistant Secretary were read and ordered spread of record.

#### REPORT OF THE WORK OF THE FOOD, DRUG AND WATER LABORATORIES OF THE STATE BOARD OF HEALTH FOR THE QUARTER END- ING APRIL 1, 1916.

The work of the past quarter has differed but little from the long established routine except perhaps in the fact that the departments have been represented at many conferences in different parts of the country, as will be hereafter detailed.

The laboratory work in both departments of food and drugs is increasing. We have found it necessary to give careful attention to the quality of meats being sold by butchers throughout the state. After a number of years what we once thought was reformation but which now seems to be only a forced inactivity,

the butchers are again using sulphite for the preservation of their meats. We have already successfully prosecuted butchers in different parts of the state for using sulphites as preservatives and colorants.

Mr. McAbee has found a large number of samples of imitation or adulterated aspirin in the hands of druggists throughout the state, and some twenty-five prosecutions have been brought because of the sale of aspirin which was nothing but milk sugar and perhaps, as in some cases, citric acid. The sale of this fraudulent aspirin is due no doubt to the fact that genuine aspirin is practically impossible to obtain. In some cases it is apparent that druggists have been so foolish as to buy high priced drugs from bootleggers or from grip peddlers who have in every instance unloaded stocks of fraudulent drugs.

After a long period of comfortable inactivity in both these laboratories it now seems that we must revise our earlier notion that food and drug fraud was a thing of the past and constantly keep on the watch for outbreaks of old forms of fraud and the new tricks which the later generation of manufacturers and salesmen are developing.

The work of the water laboratory has shown the usual number of polluted waters. Several epidemics of so-called winter cholera have been reported since the December epidemic at Indianapolis. Gary, Indiana, suffered seriously from an outbreak similar in effect and conclusion to the Indianapolis epidemic. It is worthy of noting that in Milwaukee many thousand inhabitants were taken ill in a brief period, and that following the superficial illness several hundred cases of typhoid have developed.

In the inspection work we have to report excellent progress in the study of the dairy situation. This work was undertaken by arrangements made with the Indiana Association of Manufacturers of Dairy Products and made possible by the adoption of the cream standards at your last quarterly meeting. In view of the fact that the entire country is disturbed over the reported bad quality of dairy butter, it is worth noting that up to the present time inspector Bruner has found 96.7% of the butter made in Indiana is produced from pasteurized cream. He reports that over 98% of the milk supply is pasteurized and that 83% of the ice cream is also made from pasteurized material. While these figures are highly satisfactory I have taken steps to round out the percentage to a full one hundred percent by issuing circular letters requiring all manufacturers of butter and of ice

cream that their product after July first be made from pasteurized raw material. It is further worth noting that the Indiana Association of Manufacturers of Dairy Products and the Ice Cream Manufacturers Association have unanimously approved such action. It now seems probable that within the next few months Indiana may say publicly that of all the states she alone is producing butter and ice cream which is one hundred percent pasteurized. Whether or not this ambitious statement may be considered as a public health proposition (and I believe it is an important public health proposition) the economic value of such a statement to the Indiana dairy interests can hardly be overestimated.

Following the adoption by your Board of an order requiring the workers with food to hold a certificate showing good health, a blank has been adopted, a copy of which is herewith attached, a supply printed and distributed to many health officers and manufacturers throughout the state. The inspectors report that they are finding absolutely no opposition to the order, but that it is everywhere hailed as an important advance in public health work. In this connection I am glad to note that on April 12th, the Board of Health of the City of Indianapolis voted to start an active war against the employment of diseased persons by any establishment making or serving food to the public. This action, for which the City Board of Health is to be congratulated, is I believe the final step necessary to make the order of the State Board of Health universal throughout the state, for all other cities and health officers must of course ultimately follow where Indianapolis leads.

In addition to the work herewith reported I append a list of special work to which I have given attention. This work which has in some instances carried me outside the state, is I believe not only helpful to the associations interested, but particularly so to our work in Indiana because it brings National Associations and residents of other cities and states in touch with the progressive, constructive efforts of the Indiana State Board Health.

*January 10th to 20th.*—Attended Federal Food Standards Meeting at Washington, D. C.

*February 1st.*—Addressed Ohio Ice Cream Manufacturers Association, Columbus, Ohio.

*February 2, 3, and 4.*—Indiana Sanitary and Water Supply Association meeting.

*February 8.*—Addressed National Canners Association, Louisville, Kentucky.

*February 23.*—Government Hearing—Evaporated Apples, Buffalo, N. Y.

*February 24.*—Addressed Indiana Association Manufacturers of Dairy Products, Lafayette, Indiana.

*February 28.*—Addressed Coterie Club, Logansport, Indiana.

*March 1.*—Addressed the Indiana Egg & Poultry Association.

*March 3.*—Addressed Conference Field Superintendents, Schlosser Bros. Creamery, Frankfort, Indiana.

*March 9.*—Addressed New York State Canners Association, Rochester, N. Y.

*March 14-17.*—Fifth Annual Conference of State, County and City Inspectors of Weights and Measures at Indianapolis.

*March 24.*—Addressed Women's Franchise League, Claypool Hotel, Indianapolis.

*March 27 to 30.*—Conference with Food Officials at Albany, N. Y., concerning proposed Pure Food Legislation.

#### QUARTERLY REPORT, BACTERIOLOGICAL LABORATORY.

*Will Shimer, M. D., Superintendent.*

The last quarter has been a very busy one. In addition to the unusually large number of sputum specimens there were several small epidemics of diphtheria and a very great demand for typhoid vaccine to vaccinate the State Militia.

Every year about two hundred nurses graduate from the Indianapolis Hospitals. In their work nurses come directly and intimately in contact with their patients and in many instances can do more than the family physicians to educate the people in hygienic living.

Every winter members of the laboratory staff have lectured to the nurses, outside of office hours, without any remuneration even paying their own car fare to and from the hospitals.

The following is the lecture schedule:

<i>Lecturer</i>	<i>Number</i>	<i>Hospital</i>
Dr. Anderson	12	Protestant Deaconess.
Dr. Schweitzer	12	St. Vincents.
Dr. Schweitzer	12	Fletcher's Sanitarium.
Dr. Shimer	12	Long Hospital.
Dr. Shimer	12	City Hospital.

I desire very much to attend the next meeting of the American Medical Association which is to be held at Detroit June 12-16. The laboratory and hygiene sections are instructive and valuable to any one doing public health work.

The following program for the Health Officers School was adopted:

### PROGRAM.

#### FIRST SESSION, TUESDAY, MAY 2,

10:00 A. M.

Call to order.....James S. Boyers, M. D., Pres.  
Announcements, Committees, Business.  
Medical Inspection and School Nursing.....H. G. Morgan, M. D.  
Housing and Public Health.....Mrs. Albion Fellows Bacon.  
Land Marks of Epidemiology.....Fletcher Gardner, M. D.  
Question Box on President's Table.

#### SECOND SESSION, TUESDAY, MAY 2,

1:30 P. M.

Some suggestions for Municipal Food Control.....Lucius P. Brown.  
Milk Sanitation.....Chas. E. North.  
Typhus Fever and Serbian Experiences.....H. H. Mitchell, M. D.  
Prevention of Diphtheria.....Will Shimer, M. D.  
Latest Phases of Food Control.....H. E. Barnard.

#### EVENING SESSION.

The evening session will be with the Indianapolis Medical Society. Place and program will be announced. All health officers are expected to attend.

#### THIRD SESSION, WEDNESDAY, MAY 3,

9:00 A. M.

Vital Statistics.....C. A. Carter, M. D.  
The Sanitation of Public Calamities.....Fletcher Gardner, M. D.  
"Beauty from Ashes".....Mrs. Albion Fellows Bacon.  
The Prevention of Cancer.....Carl G. Viehe, M. D.  
Physical Condition of School Children in the Newcastle Schools.....  
W. R. Fugate, M. D.  
Municipal Milk Control.....Chas. E. North.

*Ordered:* The State Board of Health shall be represented at the annual meeting of the American Medical Association at Detroit, June 12 to 16, by any member of the Board who desires to attend, their expenses to be paid from the general board fund.

*Ordered:* Captain J. L. Anderson shall receive \$300 per annum from the rabies fund instead of \$150 as hereto-

fore and he shall receive \$100 from the weights and measures fund instead of \$250 as heretofore and any previous conflicting order is hereby repealed. This order to take effect from October 1, 1915.

*Ordered:* The State Board of Health shall be represented at the annual meeting of the American School Hygiene Association held July 3 to 7 in New York City by Dr. Wm. F. King, Asst. Secretary. His expenses to be paid from the general fund of the board.

*Ordered:* The State Board of Health shall be represented by any member of the Board who desires to attend at the annual Conference of State Boards of Health with the U. S. Public Health Service which conference will be held May 13 to 15, all expenses to be paid from the general fund of the board.

*Ordered:* The State Board of Health shall be represented at the annual Conference of State and Provincial No. A, Boards of Health by any member of the Board who desires to attend. The said conference will be held at Washington, May 16 to 17, all expenses to be paid from the general fund of the board.

*Ordered:* There shall be a special meeting of the Indiana State Board of Health held May 2 and 3 at Indianapolis, the principal purpose to attend the annual health officers conference and to look after any business which might come before the board.

*Ordered:* Drs. Boyers and Kern shall constitute a committee to investigate and report to the next regular meeting of the Board upon the subject of what can be done to induce or compel all physicians to keep clean, sanitary offices.

*Ordered:* All plans and specifications for school buildings and public buildings of all kinds shall be submitted to the State Board of Health for inspection and approval as to sanitary features before such plans are finally adopted, and that when such plans are approved by the State Board of Health, such approval shall be evidenced by the seal of the State Board of Health attached thereto.

# SCHOOLHOUSES CONDEMNED.

The following schoolhouses were condemned:

Delaware County, Union Hamilton Townships, Shideler school.  
 Fulton County, Aubenaubbee Township, The Delong School.  
 Marshall County, District No. 9, Tippecanoe Township.  
 Rush County, District No. 1, Orange Township.  
 Rush County, District No. 2, Orange Township, Goudy School.  
 Rush County, District No. 3, Orange Township.  
 Tippecanoe County, District No. 9, Fairfield Township.  
 Washington County, District No. 2, Vernon Township.

*Whereas:* The said schoolhouses as duly entered herewith and for which each individual and separate schoolhouse a sanitary survey has been made and filed in the office of the State Board of Health, and

*Whereas:* Each individual and separate schoolhouse as above named has been judged to be unsanitary and unfit for school purposes, the same are herewith condemned and the authorities in charge of said schoolhouses are forbidden according to law to use or occupy or permit to be used said schoolhouses for school purposes after June 15, 1916.



## SPECIAL MEETING.

MAY 2, 1916.

Present: Drs. Boyers, Freeland, Kern, Hurty.

The President announced the Special Meeting was for the purpose of enabling the members to attend the annual health officers conference and to transact such business as might come before the Board. The Secretary stated there were 230 health officers in attendance and up to noon the program had been carried out as previously arranged for. He said that Drs. North and Brown of New York had arrived and in the afternoon would deliver their addresses for which they had been engaged.

### PROGRAM.

#### FIRST SESSION

TUESDAY, MAY 2ND

10:00 A. M.

Call to Order.....JAMES S. BOYERS  
President State Board of Health

#### ANNOUNCEMENTS      COMMITTEES      BUSINESS

Medical Inspection and School Nursing.....H. G. MORGAN  
City Sanitarian, Indianapolis

Housing and Public Health.....MRS. ALBION FELLOWS BACON  
Evansville

Land Marks of Epidemiology.....FLETCHER GARDNER  
Author "Practical Sanitation," Bloomington

#### QUESTION BOX ON PRESIDENT'S TABLE.

(Write your question plainly and place in question box any time.)

#### SECOND SESSION

TUESDAY, MAY 2ND

1:30 P. M.

Some Suggestions for Municipal Food Control.....LUCIUS P. BROWN  
Director Bureau Food and Drugs, New York City

Milk Sanitation.....CHARLES E. NORTH  
Director North Public Health Bureau, New York City

Typhus Fever and Serbian Experiences.....H. H. MITCHELL  
Epidemiologist, State Board of Health

Prevention of Diphtheria.....WILL SHIMER  
Superintendent Laboratory State Board of Health

Latest Phases of Food Control.....H. E. BARNARD  
State Food and Drug Commissioner

EVENING SESSION

The evening session will be with the Indianapolis Medical Society.  
Place and program will be announced. All health officers  
are expected to attend.

THIRD SESSION

WEDNESDAY, MAY 3RD

9:00 A. M.

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Vital Statistics.....	C. A. CARTER
	Chief Statistician, State Board of Health
The Sanitation of Public Calamities.....	FLETCHER GARDNER
"Beauty from Ashes".....	MRS. ALBION FELLOWS BACON
The Prevention of Cancer.....	CARL G. VIEHE
	Evansville
Physical Condition of School Children in the Newcastle Schools	
	W. R. FUGATE
	Newcastle
Municipal Milk Control.....	CHARLES E. NORTH
	New York

*Ordered:* The special meeting of the State Board of  
Health shall be held at noon May 3, 1916.

There being no further business the board adjourned.

## SPECIAL MEETING.

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MAY 3, 1916.

Present: Drs. Freeland, Kern, Boyers, Sutton, Hurty.

The President announced the meeting was called in order to attend the second day session of the annual health officers' conference and to transact any other business which might come before the board.

The secretary stated the program of the preceding day and forenoon of the second day had been carried out to the letter. The attendance on the second day was the meeting of the health officers with the Indianapolis Medical Society on the evening of May 2, was well attended and great interest was shown in the program. The evening meeting was entirely under the auspices of the Indianapolis Medical Society, Dr. Alois P. Graham, president. The program for the evening was a symposium upon Cystitis. Four papers with charts were presented followed by discussion. The health officers I spoke to afterwards were exceedingly well pleased with the meeting.

On the first day a committee was appointed upon legislation, also upon motion of Dr. Ramsey of Posey County a committee was appointed which would consider the appointment of a man to speak upon the subject of the management of contagious and infectious diseases. The president appointed the following gentlemen as members of the committee on legislation: Drs. Miller of Elkhart, Morrison of Hartsville, Bosenbury of South Bend. The president appointed the following committee to select an instructor for the health officers on management of contagious and infectious diseases: Dr. Ramsey of Mt. Vernon, Dr. Coc of Kokomo, Dr. Murphy of Salem. The committee on legislation presented the following report which was unanimously accepted by the conference.

*Passed:* We, your committee on legislation, beg to report that while we are not unmindful of the fact that there are many things pertaining to the health work of the State of Indiana that should receive consideration at the hands of the coming legislature yet we realize that health legislation is constructive legislation, that at best is but slow in the building, and that the most important structures should always have precedence, and that we feel at this particular time that these most important structures are wholetime health officers and better regulation of school inspections, and that all minor matters should give way to these all important questions, and the united

effort of the State Board of Health and physicians of the state should be exerted in an effort to have laws placed upon the statute books that will establish these necessary measures.

*Therefore be it Resolved* by this Health Conference now in session, That legislation creating wholtime health officers as well as better and more specific regulations of school inspection for Indiana is the pressing need of the hour, and we request that the officials of the State Board of Health prepare bills embodying these views and present them to the next legislative body, and that they be urged to use their best effort to have these framed into the laws of our Great State of Indiana.

Signed by Committee D. L. MILLER,  
J. H. MORRISON,  
CHARLES S. BOSENBURY.

The committee on selecting an instructor for health officers in control of contagious diseases presented no report. Dr. Ramsey the chairman who presented the resolution stated he could not secure the attendance of the other members.

A special rising vote of thanks was passed by the health officers to the State Board of Health on account of the conference being so well arranged and conducted.

The following resolution introduced to the health conference by Dr. Chas. Bosenbury was unanimously passed.

*Whereas:* sufficient evidence has been presented by Dr. North and other speakers to prove the need of regulation of the milk supply and,

*Whereas:* The remedy lies in securing clear milk and safeguarding the milk by clarification and pasteurization, therefore be it

*Resolved:* That this conference respectfully petition the State Board of Health to prepare and present to the next legislature a bill to regulate the milk supply in the State of Indiana, such bill to provide for clarification and pasteurization of all milk sold in the State of Indiana.

*Ordered:* Dr. Shimer shall represent the State Laboratory of Hygiene of the State Board of Health at the annual meeting of the American Medical Association to be held in Detroit, June 12 to 16, his expenses to be paid out of the fund of the laboratory of hygiene.

*Ordered:* The secretary shall represent the State Board of Health at the annual meeting of the National Milk Standards Committee at New York, May 27-28, his expenses to be paid from the board fund.

*Ordered:* That A. W. Bruner shall represent the State Board of Health at the convention of Milk Producers May 5 and 6, 1916, at Washington, D. C., his expenses to be paid out of the laboratory fund.

### SCHOOLHOUSES CONDEMNED.

The following schoolhouses were condemned:

Central School Building, Michigan City, Laporte County.  
District No. 4, Heath Township, Harrison County.  
Boswell, Grant Township, Benton County.

*Whereas:* The said schoolhouses as duly entered herewith and for which each individual and separate schoolhouse a sanitary survey has been made and filed in the office of the State Board of Health, and

*Whereas:* Each individual and separate schoolhouse as above named has been judged to be insanitary and unfit for school purposes, the same are herewith condemned and the authorities in charge of said schoolhouses are forbidden according to law to use or occupy or permit to be used said schoolhouses for school purposes after June 15, 1916.

**REGULAR QUARTERLY MEETING OF THE INDIANA  
STATE BOARD OF HEALTH FOR THE SECOND STA-  
TISTICAL AND THIRD FISCAL QUARTER, BOTH  
ENDING JUNE 30, 1916.**

JULY 7, 1916.

Called to order at 1:00 p. m.

Present Drs. Boyers, Kern, Sutton, Freeland, and Hurty.

The President announced the meeting was regular and was for the purpose of attending to the business of the second statistical and third fiscal quarter and such other business as might come before the board.

The minutes of the last regular meeting held April 14, 1916, and also the minutes of the special meetings held May 2 and 3, were read and approved in each individual part and as a whole.

**REPORT OF SECRETARY FOR THE SECOND STATISTICAL AND THIRD  
FISCAL QUARTER, BOTH ENDING JUNE 30, 1916.**

The secretary, the assistant secretary and the epidemiologist made 39 visits during the quarter. The work of the epidemiologist to which position, Dr. H. H. Mitchell was appointed, began April 1. The first month Dr. Mitchell gave up to studying the department and its method of work, its organization, also in studying the laws and the rules. He, therefore, has really only two months' of work to report and it is of a preliminary nature. His report is appended hereto, also that of the assistant secretary.

The following table shows the status of smallpox and typhoid fever for the quarter.

**SMALLPOX.**

<i>Month.</i>	<i>Cases.</i>	<i>Deaths.</i>	<i>Counties Invaded.</i>
April, 1915.....	471	3	35
April, 1916.....	60	0	14
May, 1915.....	268	1	40
May, 1916.....	69	0	14
June, 1915.....	328	0	33
June, 1916.....	162	0	21
<b>Total, 1915.....</b>	<b>1,067</b>	<b>4</b>	<b>108</b>
<b>Total, 1916.....</b>	<b>291</b>	<b>0</b>	<b>49</b>

## TYPHOID FEVER.

<i>Month.</i>	<i>Cases.</i>	<i>Deaths.</i>	<i>Counties Invaded.</i>
April, 1915.....	67	18	26
April, 1916.....	151	38	26
May, 1915.....	111	27	23
May, 1916.....	135	17	33
June, 1915.....	67	17	24
June, 1916.....	111	27	23
<hr/>			
Total, 1915.....	245	62	73
Total, 1916.....	397	82	82

## EPIDEMICS.

Measles prevailed extensively through the state during the quarter. Probably every county was visited. Quarantine and isolation do not seem to stop the spread of measles and the reasons seem to be quite plain. Very little chickenpox was reported. A considerable epidemic of smallpox appeared at Montezuma, Parke county with no deaths. Smallpox also appeared at South Bend in considerable degree with no deaths. Only a few cases of diphtheria were reported. Nothing like epidemics of this disease were reported. Scarlet fever in mild form was reported from a few points only. It may be said for the quarter that epidemic diseases were not greatly in evidence.

The secretary made the following visits, as usual only upon invitation of health or other local authorities.

*April 16, Brazil.*—The visit to Brazil was to attend a public meeting of the various civic organizations of the city. In the forenoon I spoke in the Christian Church and in the evening together with Mr. Amos Butler, Secretary of the State Board of Charities, spoke before a general audience, and of course, upon the subject of the public health. The meeting was a large one and devoted entirely to civic betterment.

*April 27, Muncie and Portland.*—This visit was to aid the Muncie Civic Association in its work of Baby Welfare. As usual the activities were varied on for five days. I had to examine babies, in the afternoon spoke before the high school and also made a public address in the evening.

From Muncie I went to Portland to confer with the commercial club and authorities of that city in regard to sanitary matters. I made two talks, one before the high school and one before the grade schools. I also conferred with the Committee on Health from the Commercial Club and a committee of three from the

city council. We considered several sanitary matters pertaining to the city. I inspected some of the alleys, also the drainage of the town and made recommendations.

*May 10, Richmond and Eaton.*—Dr. Mitchell accompanied me on this trip. At Richmond, Dr. Mitchell inspected two cases of persistent diphtheria. It was found necessary to remove the tonsils in both these cases before the diphtheria carriers could be made free from the disease. The object of the secretary's visit was to address the commercial club upon "consumption" and the establishment of a county consumption hospital. From Richmond we went to Eaton. This was because of an invitation from the authorities of Eaton and also from the school authorities. We met with the school board and the town board of trustees and talked over health matters concerning Eaton. A sewer system is being agitated in the town and it is hoped that our conference will further the installation of sewers. I made two talks to the pupils of the schools and in the evening addressed a public audience showing slides and moving pictures. An incident worthy of mention was the dinner given to us by the domestic science class of the high school.

*May 13, Washington, D. C.*—The annual conference of State Boards of Health with Surgeon General Blue was held in Washington, May 13 and 14 and the annual conference of State Boards of Health occurred 15th, 16th and 17th. The visit to Washington was for the purpose of attending both of these meetings. I left on May 13 arriving in Washington Sunday, the 14th and attended one day's session only of the Boards of Health with the Surgeon General. I read a paper entitled "Cooperation of State and County Boards of Health," before the conference. Both meetings were decided successes and both were inspiring in the cause of the public health work.

*May 24, Wawasee.*—On this date I visited Wawasee on account of a promise made to have a sanitary survey of the lake made. This promise was made on account of typhoid fever at Vawter Park Hotel in the fall of 1915. The survey was made by Mr. J. C. Diggs of the Water Laboratory, assisted by Mr. Truit and Dr. Mitchell. Every hotel and cottage upon the lake was visited and every sanitary condition duly inspected and recorded. Advice and directions for improvements from the sanitary standpoint were freely given and in several instances the same were formally ordered. No opposition of moment was met with and prompt compliance with all orders and advice is expected.



*June 8, Paoli.*—During the week beginning Sunday June 4, a Sunday school conference and public welfare meeting was held in Paoli. Upon invitation I spoke on the afternoon of June 8 before the conference and in the evening with slides and moving pictures addressed a general audience.

*June 10, Detroit.*—The American Medical Association held its annual meeting at Detroit, June 12 to 16. Sunday, June 11, I made two addresses concerning the public health in churches. One was made before an audience in the Christian Church in the western part of the city. In the evening I addressed a large audience at the Congregationalist Church. It was said 1,000 were in attendance. During the week I attended the meetings of the Section on Public Health and Preventive Medicine, deriving much information and enthusiasm therefrom. A prominent feature of these meetings was the symposium upon industrial hygiene. Preceding the sessions of the section named, there was organized a new association entitled "The American Association of Industrial Physicians and Surgeons." The symposium upon industrial hygiene referred to consisted of four papers and discussions of several hours. I am convinced that industrial hygiene should be taken up by the Indiana State Board of Health at the earliest possible opportunity.

*June 22, Fort Wayne.*—On this date under the auspices of the city board of health there was held a public health celebration with special reference to children on account of the Fort Wayne clean up. Mrs. Josephine L. Nesbit of Ohio, had been employed by the city board of health to organize a scientific clean up of the city. The pupils of the city had rendered such excellent aid in the work that it was determined to give them an automobile ride and devote one day to celebrating their services. The procession of school children occupied 207 automobiles headed by a brass band. This procession with streamers and banners and music paraded the streets and finally landed at the Fort Wayne theater where I addressed 2,000 children. Following the address moving pictures, of most remarkable and beautiful character were given of the exhibit division of the National Cash Register Company of Dayton, Ohio. In the evening a general audience of citizens gathered in the same theater and I made a second address upon the work of the State Board of Health and what further could be done to improve the health of the state.

REPORT OF ASSISTANT SECRETARY FOR THE THIRD FISCAL AND  
SECOND STATISTICAL QUARTER.

*April 5.*—I attended a meeting of health officers of the 13th Congressional District at Goshen. The meeting was held in the Public Library and was attended by sixteen health officers from various parts of the district. I gave a short talk on the work of the State Board of Health which was freely discussed by all the health officers present.

*April 12.*—I visited Denver Indiana, to give the high school commencement address and to confer with the trustee Mr. A. C. Baldwin, in regard to a new system of heating and ventilation for the Denver school building.

*April 19.*—I visited Lafayette and made an address before the Parent-Teachers Association of West Lafayette. The meeting was well attended and as a direct result of the meeting medical inspection was established in the West Lafayette schools.

*April 20.*—I visited Boswell to inspect the Boswell School building. This building was condemned by the State Board of Health.

*April 25.*—I visited Muncie to give an evening address in connection with the Child Welfare Week.

*April 28.*—I visited Corydon and gave two addresses, one in the evening and one the morning of April 29, in connection with the District Conference of Charities and Correction. While at Corydon I made an inspection of a one room district school in Heth township, which building was condemned.

From May 1 to May 20 I was extremely busy with the exhibit on the National Conference of Charities and Corrections which was given in the State House from May 5 to May 19. I was chairman of the General Welfare Division of the exhibit which occupied the second floor of the State House. No less than 50,000 people saw this exhibit which was pronounced by the delegates attending the conference, to be the best ever held in connection with a National meeting.

*May 26.*—I visited Danville and made an address on Medical Inspection in Public Schools before the Hendricks County Medical Society. The society tendered a vote of thanks and also passed a resolution indorsing compulsory medical inspection in the schools of Indiana and indorsing the All Time Health Officer.

■ *May 29.*—I visited Logansport to make an inspection of the heating and plumbing installation in the Franklin school build-

ing. From Logansport I went to Rensselaer where I had a conference with trustee Harvey W. Wood in regard the plans for a consolidated school building in Marion township. While at Rensselaer I went with the county superintendent and made a sanitary survey of the school building at Parr in Union township. This building was condemned and the trustee and advisory board are making plans for the construction of a new school building.

From Rensselaer I went to Chicago and from Chicago to East Chicago where I inspected the plumbing and heating installation in the East Chicago high school building and in the high school building at Indiana Harbor. I also had a conference with inspector Hedrick, the East Chicago School Board and superintendent Canine in regard the proposed changes and improvements in the East Chicago schools. From East Chicago I went to Michigan City where I inspected the Central school building in response to a petition from the patrons of the school. This school building was also condemned. A full report of the sanitary conditions of all the schools herein mentioned is on file. From Michigan City I went to Winona Lake where I met Mr. Diggs, chemist and Dr. Mitchell, epidemiologist and conferred with the town council of Winona Lake in reference to the water supply at this summer resort.

*June 3.*—I went to Columbus to inspect the new industrial high school building. This building is one of the first strictly industrial school buildings in the state and is not only well planned but well equipped in every way for industrial school work. The building was approved.

*June 7.*—In company with John J. Walsh, state factory inspector and Dr. Mitchell, epidemiologist I visited the Prest-O-Lite battery plant at Speedway. This is a new institution manufacturing storage batteries and, of course, handling great quantities of lead. The Prest-O-Lite company is anxious to install every possible device to safeguard the health and lives of their employees and for this purpose the plant was inspected and a conference held with the superintendent and general manager. The requirements made at this time are being carried out and the Prest-O-Lite plant will be a model of its kind when the changes now contemplated are completed.

*June 9.*—I went to Montezuma in response to a call from Dr. Dooley, health officer, to examine a number of cases of suspected smallpox. I saw eleven cases of genuine smallpox and had a

conference with Dr. Dooley and the members of the town council in regard to measures necessary to stamp out the disease.

*June 16.*—I went to Kokomo to inspect two grade schools in reference to the temporary use of basement rooms for school purposes. Orders were issued to the Kokomo School Board setting forth the changes and improvements necessary, after which permission will be granted to use these basement rooms for a period not to exceed two years.

*June 19.*—I went to Lawrenceburg and in company with Dr. Fagaly, county health commissioner, Mr. Cole, county superintendent of schools and Dick White, inspector for the State Board of Health I visited Guilford and inspected the old school building and made an address before a meeting of patrons and school officials. The Guilford school building is condemned as a result of the meeting and a movement has been started to build a joint grade and high school to include the schools of two adjoining townships.

*June 22.*—I went to Colfax where I made three addresses in connection with the community Institute under the auspices of Indiana University.

*June 24.*—I went to Fowler to inspect a number of proposed school house sites for trustee John Moynihan of Pine township. The most sanitary site was recommended and the trustee has since purchased three acres of ground at this point for a township consolidated grade and high school.

The last quarter has been one of unusual activity in school house construction throughout the state. The Board at its April meeting adopted an order requiring that all plans and specifications for school house construction should be submitted to and approved by the State Board of Health before the same were finally adopted. Practically all of the school house work has been in the hands of the Assistant Secretary. Since this order was passed by the Board I have inspected and passed upon plans for the construction of one hundred and one (101) school buildings. Twenty-nine (29) are buildings of one room, thirty-seven (37) are buildings of from one to four rooms and thirty-four (34) are buildings of more than four rooms. Most of these buildings of more than four rooms average six and eight class rooms with additional rooms for vocational work and with assembly and auditorium rooms. Forty-two (42) of these buildings are consolidated township grade and high schools. Seven of the buildings are city high schools and five are city grade schools. Out of the

total of 101 buildings, ninety are to be classed as rural schools as against eleven (11) strictly city schools. The consolidated rural school has come to stay and the greatest movement in the public schools of Indiana today is going on in rural districts and in the small town schools. Every one of these 101 buildings have been made to comply with the Sanitary School House Law of Indiana and with the rules and regulations of the State Board of Health and represent the very best knowledge and experience in sanitary provisions for the comfort, health and efficiency of the school pupils.

#### REPORT OF THE EPIDEMIOLOGIST FOR THE SECOND STATISTICAL AND THIRD FISCAL QUARTER.

*Evening of April 4.*—I visited Mooresville to give a talk on "My experience in Serbia" before the Parent-Teachers Association. This meeting was held in the assembly hall of the high school which was filled to the crowding point. Following my talk the State Board of Health moving picture film entitled "Toothache" was shown and I made further remarks on dental hygiene.

*April 5.*—I attended the second meeting of the 13th District Health Officers Association at Goshen.

*April 7.*—I went to Bridgeton, Parke county, to confer with the trustee and architect in regard to a proposed school site. The report of this visit is given elsewhere in detail.

*April 11.*—I visited Richmond with Dr. Hurty where he spoke before the Commercial Club. In this city I investigated the case of a diphtheria carrier. From Richmond we went to Muncie and Eaton. At Eaton Dr. Hurty spoke several times before school children and in the evening in a moving picture theatre.

*April 17.*—I visited the Indianapolis City Hospital with Dr. Hurty where we investigated an epidemic of gonococcus vaginitis in the children's ward.

*April 20.*—I visited New Bethel to speak before a group of citizens interested in a clean-up campaign. This meeting did not materialize because of a severe rain. However, I discussed plans for such a campaign with two interested citizens.

*April 22.*—I visited Clayton to investigate a complaint in regard to rubbish nuisance made by the editor of the Clayton Press. This matter had been referred to the County Health Commissioner who had failed to take action. The whole trouble

was a matter of arranging for a wagon to carry accumulated rubbish from the village.

*April 24.*—I went to Muncie to arrange the State Board of Health exhibit for the Child Welfare Week. The program arranged for this week was sufficient to stir considerable enthusiasm and to give the public much important information but the managers had not given their plans the right publicity and the advertising was a failure. As a result the attendance was very poor. I assisted at the baby conference Tuesday afternoon, gave a short talk and spoke before the groups of children Wednesday morning in one of the grade schools.

The remainder of April I assisted in the Bacteriological Laboratory.

*May 1st and 4th* were spent in the Bacteriological Laboratory. May 2nd and 3rd was the Indiana Health Officers Conference which I attended and spoke on "Typhus Fever and Serbian Experiences" with lantern slide illustrations.

*May 5th to 10th* was devoted to the preparation of the State Board of Health exhibit at the Charities and Correction Conference. During this conference which lasted from May 10th to 18th inclusive, I attended numerous meetings of the conference, talked and demonstrated at the Bacteriological Laboratory booth and talked before an audience for P. H. moving pictures.

*May 15th.*—I investigated an epidemic of skin infections at the Warner Gear Co., of Muncie and took cultures of pus from several men infected. Upon returning, I plated samples of oil sent to the State Board of Health by the Gear Co., and found staphylococcus aureus in the oil which had been used and the same organism in the pus expressed from the lesions upon the arms of the men in the factory.

*May 19th.*—I started for Jasper and Huntingburg where I investigated an epidemic of supposed meat poisoning which is reported elsewhere in full.

*May 23.*—I went to Lake Wawasee where I spent the remainder of the month in a sanitary survey with Mr. Diggs and Mr. Pruitt. The report of Mr. Diggs and myself describes our work. For the most part our mornings were spent in making inspections and the taking of water samples and the afternoons in the laboratory work upon the samples collected.

*June 6.*—Under the direction of Dr. Hurty I started on a plan for visiting various town, city and county health officers with a view of determining something of what is being done in

the line of public health work by local officials. At Crawfordsville I called on Dr. H. W. Sigmond, county health commissioner, and Dr. J. N. Taylor, city health officer.

*June 7.*—In company with Dr. King and Mr. Walch of the Industrial Board, I visited the Prest-O-Lite plant at the Speedway to consider their methods of handling lead in the storage battery department. Altho considerable money and effort had been expended to protect the employes from lead poisoning, the conditions found were extremely dangerous in both the mixing and pasting rooms. The dangerous features of their methods of handling the lead were pointed out and on June 17 the second visit was made to the plant with other officials of the Prest-O-Lite company.

On June 20 a third visit to the Prest-O-Lite Company was made in company with Dr. Effenbach of Chicago. At this time further recommendations for protecting the employees against lead poisoning were made by Dr. Effenbach.

During the week of June 11 to 18 I assisted in the Bacteriological laboratory during the absence of Dr. Shimer and Dr. Schweitzer and Dr. Anderson on the 12th.

On June 16, thru the courtesy of Dr. Edgar Cox, health officer at Kokomo, I visited five cases of smallpox.

*June 21.*—I gave a short talk before the Indiana Pharmaceutical Association at the Claypool Hotel.

*June 22.*—I called on Dr. W. C. Schwier, county health commissioner at Knox and Mr. Geo. Sarber, city health officer. In company with Dr. Schwier, I visited Bass Lake where I spent two and one-half days making a sanitary survey of the conditions about the lake. This visit was the result of an invitation to Dr. Hurty from the Bass Lake Association.

*June 28.*—Went to Rome City to make a sanitary survey of Sylvan Lake.

#### REPORT OF THE WORK OF THE FOOD, DRUG AND WATER LABORATORIES FOR THE QUARTER ENDING JUNE 30, 1916.

The work of the quarter ending June 30, 1916, has followed its usual course. The chemists have given their attention to the examination of foods which are particularly liable to adulteration during the summer months, such as prepared meat products, milks and ice creams. We are able to report little or no improvement in the quality of milk. A number of samples recently

received have been skimmed or watered and in a number of instances we have ordered prosecution because of the presence of visible dirt. In addition to official samples we are receiving an increasing number of samples of varied character from consumers and dealers. These samples are usually of foods unfit to eat, but it is difficult in such cases to place the responsibility and the chief value of the laboratory work is expressed in the feeling of satisfaction of the sender when he receives our report.

The work of the Water Laboratory is largely increased and at the present time requests for bottles are coming in more rapidly than we can fill them. While it is our desire to send containers to all who ask for them, the difficulty of getting them shipped back promptly is great and frequently we find it necessary to send several requests for the return of containers to the very persons who have expressed a desire for an immediate report.

Inspector Cohn is continuing his study of hotels. He has now covered the northern and eastern portions of the state. In general his report shows the condition of the hotels to be reasonably satisfactory. Many of the hotels are not complying with the 99 inch sheet law.

Inspector Bruner has continued his study of the plants manufacturing dairy products. He continues to find the plants in good condition and reports that almost without exception they are pasteurizing their raw material. The rules adopted by the State Board of Health at its last meeting have been distributed to every manufacturer in the state and in no case has opposition been encountered. This means that Indiana alone of all the dairy states can now say that all of the butter produced in a commercial way is made from pasteurized cream. Similar compliance with the rule requiring the pasteurization of raw material used in manufacturing ice cream has been everywhere found.

In line with our campaign for better dairy products the department has issued a dairy poster, a copy of which is attached. This is being distributed throughout the state and is receiving much favorable comment.

The Medical Fraud circulars, a copy of which is enclosed and which was prepared some months ago, have been printed and are being widely distributed.

The work of the physical examination of food handlers has been entered into enthusiastically by health officers. We have already distributed 75,000 blanks and requests are coming in for



more with every mail. The returns to date are most gratifying. We have thus far received certificates of good health from 26,000 employees in food establishments. This does not include the city of Indianapolis. The Board of Health has on file more than two thousand certificates.

At the time of the National Conference of Charities and Corrections our department placed exhibits in the State House which attracted much favorable comment. These exhibits have been promised different municipalities and will be busy throughout the fall.

In addition to the work herein reported I append a list of special duties to which I have given attention. This work has in some instances carried me outside the state. I believe however, that it has been of value and that it has extended the already wide and favorable reputation of the work of the Indiana State Board of Health.

*April 4.*—Delivered address before members of White River Creamery Company, Muncie, Indiana.

*April 8.*—Delivered address before Good Homes Exposition, Springfield, Mass.

*April 13.*—Address before Wholesale Grocers Association.

*April 18 and 19.*—Addressed American Chemical Society, Urbana, Illinois.

*April 24.*—Conference with Dr. Abbott and Dr. Tolman, Bureau of Chemistry, Washington, D. C.

*May 2-3.*—Addressed Health Officers School, May 3rd.

*May 10 to 17.*—National Conference of Charities and Corrections, State House, Indianapolis, Indiana.

*May 17.*—Addressed Wives of Indiana Funeral Directors.

*May 18 and 19.*—Addressed Indiana Cannery Association at Claypool Hotel.

*May 24.*—Addressed Southern Wholesale Grocers Association, Memphis, Tenn.

*June 2.*—Addressed Graduating Class, the Interlaken School, Rolling Prairie, Indiana.

*June 8.*—Addressed District Meeting Indiana Manufacturers of Dairy Products, Vincennes, Indiana.

QUARTERLY REPORT OF THE LABORATORY OF HYGIENE FOR THE  
SECOND STATISTICAL AND THIRD FISCAL QUARTER  
ENDING JUNE 30, 1916.

The work done during the third quarter of the year is usually lighter than any other. However, this third quarter has been a very busy one.

Attention is especially called to the total number of sputum examinations made, 1755, also to the positive sputum 517 or 34% which is the highest percentage positive in any one quarter of the year during the history of the laboratory.

When the Indiana State Militia was about to be concentrated at Fort Harrison, General Bridges asked the laboratory to supply typhoid vaccine. 8,000 doses were supplied to the militia. Lieutenant Colonel Bannister, U. S. A., ranking Medical Officer at Ft. Harrison, expressed his appreciation of the work of the laboratory, since the United States War Department did not send any vaccine until almost three weeks after the troops arrived in camp.

The work of supplying typhoid vaccine gave us a chance to try out the ability of the laboratory to increase its work in emergencies. We believe that the present laboratory organization in an emergency such as an epidemic or public catastrophe will serve as a skeleton around which can be built a laboratory force that will be able to take care of any amount of work that might become necessary.

In diphtheria epidemics the laboratory is called upon to do several hundred examinations per day but this heavy work rarely lasts more than two or three days at a time. However, we have never been compelled to employ more help at these times.

Five thousand nine hundred ninety-three outfits for mailing specimens to the laboratory were made up and sent out to the doctors. The expense of buying these outfits is very heavy and with rent, insurance, janitor service and many other additional expenses which have to come out of the \$10,000.00 appropriation it requires a great deal of planning to make the available money cover the necessary expenses. The cost of outfits alone is almost \$1,000 per year. There has been no increase in the appropriation for the laboratory in ten years although the amount of work done is many times greater than in the first few years.

The Pasteur Institute has treated 34 patients during this quarter. This is an unusually small number. The expenses

however, for treating these patients is comparatively small when compared to the cost of private treatment and on the whole is better done.

The Superintendent of the laboratory attended the Detroit meeting of the American Medical Association with an exhibit illustrating the work done by the Indiana State Board of Health in school hygiene, child hygiene, and tuberculosis. The Bacteriological Laboratory had charts showing the epidemiology of rabies in Indiana from 1906 to 1916. There was a chart for each year showing when the first case occurred in each county and the total number of cases occurring in that county for the entire year.

We were very much disappointed that there was no opportunity to discuss the rabies situation in Indiana with the health officers of Illinois, Michigan, Ohio and Kentucky. It is very important that the adjoining States co-operate in fighting rabies. No matter how efficient the antirabic measures in one State may be, if the adjoining States do nothing, very little will be permanently accomplished.

#### RESOLUTION.

*Note.* The Sanitary Food Law, Chapter 163, Acts of 1909, and the same was approved March 8, 1909, under the caption of *Diseased Employees*, section 8 reads as follows:

No employer shall require, permit or suffer any person to work, nor shall any person work in a building, basement, room, cellar or vehicle occupied or used for the production, preparation, manufacture, packing, storage, sale, distribution and transportation of food, who is affected with any venereal disease, smallpox, diphtheria, scarlet fever, yellow fever, tuberculosis, or consumption bubonic plague, Asiatic cholera, leprosy, trachoma, typhoid fever, epidemic dysentery, measles, mumps, German measles, whooping cough, chickenpox, or any other infectious or contagious disease."

When it is necessary to interpret this law, the question arises, Shall the term "venereal disease" include syphilis in all its forms or only in the forms in which it is transmissible?

*Whereas:* The object of the Sanitary Food Law is to protect the public health and prevent the spread of infectious diseases, therefore be it

*Resolved,* That the term "venereal disease" as used in section 8 of the Sanitary Food Law shall be interpreted by the State Board of Health to mean syphilis in its infectious stages and when medical examination discloses the presence of syphilis in forms not infectious, then the same shall not be considered.

Passed unanimously.

## COMMON DRINKING CUPS.

*Whereas*, It has been repeatedly demonstrated that the use of what is usually known as the common drinking cup is dangerous and is an undoubted source of communication of infectious diseases; now, therefore, in the interest of the public health.

*It is Ordered by the Indiana State Board of Health*, That the use of the common drinking cup in public conveyances, stations, hotels, restaurants, public buildings, parks, at fountains and all other places where water is provided for public use is hereby prohibited from and after August 1st, 1916.

The term 'Common drinking cup' as used herein is defined to be any vessel used for conveying water to the mouth and available for common use by the public.

Passed unanimously.

*Ordered*: The secretary shall correspond and otherwise secure all information possible in regard to a health exhibit car to accompany the agricultural exhibit trains of Purdue University.

## RESOLUTION.

*Whereas*: Poliomyelitis exists in epidemic form in New York at this date and is extending along travel lines, therefore be it

*Ordered*: The secretary shall immediately prepare a notice to the health officers of the state urging them to keep a sharp lookout for the disease and that they shall issue in their respective localities a bulletin upon the subject, requesting all physicians to be continually on the alert for the disease and to promptly report if it found.

## SCHOOLHOUSES CONDEMNED.

The following schoolhouses were condemned:

District No. 2, Marshall Township, Lawrence County, Needmore School  
District No. 7, Union Township, Jasper County, Parr School.  
District No. 1, York Township, Dearborn County, Guilford School.

*Whereas*: The said schoolhouses as duly entered herewith, and for which each individual and separate schoolhouse a sanitary survey has been made and filed in the office of the State Board of Health, and

*Whereas*: Each individual and separate schoolhouse as above named has been judged to be insanitary and unfit for school purposes, the same are herewith condemned and the authorities in charge of said schoolhouses are forbidden according to use or occupy or permit to be used said schoolhouses for school purposes after June 15, 1916.

**REGULAR QUARTERLY MEETING OF THE INDIANA  
STATE BOARD OF HEALTH FOR THE THIRD STA-  
TISTICAL AND FOURTH FISCAL QUARTER, BOTH  
ENDING SEPTEMBER 30, 1916.**

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OCTOBER 13, 1916.

Called to order by President Boyers at 1:20 p. m.

Present: Drs. Boyers, Freeland, Kern, Sutton, Hurty.

The President announced that the meeting was regular and was for the purpose of attending to the business of the third statistical and fourth fiscal quarter and such other business as might come before the board.

The minutes of the last regular meeting, held July 7, were read and approved in each individual part and as a whole.

**REPORT OF THE SECRETARY FOR THE THIRD STATISTICAL AND  
FOURTH FISCAL QUARTER, BOTH ENDING  
SEPTEMBER 30, 1916.**

The quarter was marked by a severe epidemic of typhoid fever in Indianapolis. It commenced about the middle of August and gradually increased until there were 700 cases with 32 deaths. A study of the situation shows that polluted bathing pools were the cause of a great number of the cases; others were from contaminated drinking water; and still others were contact typhoid. It is further believed that the large number of open privies still existing in Indianapolis were an important factor. The city board of health ordered vaccination of all the school children, and established vaccination stations throughout the city. 12,000 children were vaccinated at these stations and at the laboratory of the State Board of Health 13,000 were vaccinated. Upon application and to encourage the vaccination of employes by manufacturers, as executive officer I directed that typhoid bacterians be supplied the Kahn Tailoring Company, which was the first large establishment employing labor to urge typhoid anti-vaccination upon its employes. The epidemic became so menacing that the Indianapolis Chamber of Commerce took the matter up. A special meeting of the public health committee was called and your secretary was asked to preside. There was a large audience of business men and every phase of the typhoid situation was discussed. The city health authorities attended,

every member of the city board and city sanitarian with laboratory workers being present. The executive committee of the Board of Trade upheld the city board in its order for compulsory vaccination of school children. The epidemic began to subside the last of September, and by the 30th typhoid was declared no longer epidemic in Indianapolis.

The Infantile Paralysis epidemic in New York attracted the attention of the whole country. Its history has been fully written up from day to day and is only mentioned here because of the interest and attention attracted in Indiana. The number of cases of poliomyelitis reported during the quarter was 140, the mortality being 14 or 10 per cent. Dr. Mitchell's report presented herewith gives the details for the quarter.

With this report I present as usual the report of the department and add that of Dr. H. H. Mitchell, epidemiologist. His report for the quarter concerns investigations of epidemics of typhoid fever at Newburg, also investigation of typhoid fever in the rural district northeast of Newburg, also investigation of typhoid fever at Evansville. He also made an epidemiological investigation of an epidemic of sore throat at the Wawasee Inn on Lake Wawasee. In 1915 typhoid fever appeared at Lake Wawasee but this has been fully reported upon together with an investigation and survey of the Lake. What was supposed to be a typhoid outbreak occurred at Jasper but upon investigation it proved to be para-typhoid. I also present herewith a very important and interesting report from Dr. Ada Schweitzer to which particular attention is called.

The routine work of the State Board proceeded without interruption or break during the quarter. The vital statistics were better collected than ever before and I hope to be able to continue to report betterment in this department. The securing of better vital statistics consists principally in getting the doctors into line and convincing them of the importance to them and to their patients of prompt reports of the cases of reportable diseases, deaths and births which they attend. Prosecuting attorneys throughout the state are found always to be ready to enforce the vital statistics law. When the matter is called to their attention they immediately see its very great importance and their advice to physicians in every instance has been very valuable. The judges in Allen and Marshall counties have released transgressors of the vital statistics law upon condition that they hereafter comply with its every requirement.

## VITAL STATISTICS.

The vital statistics for the quarter as usually given in this report are herewith presented.

## SMALLPOX.

<i>Month.</i>	<i>Cases.</i>	<i>Deaths.</i>	<i>Counties Invaded.</i>
July, 1915.....	141	0	28
July, 1916.....	81	0	17
August, 1915.....	93	2	13
August, 1916.....	29	0	8
September, 1915.....	57	0	16
September, 1916.....	23	0	5
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Total, 1915.....	291	2	57
Total, 1916.....	133	0	30

## TYPHOID FEVER.

<i>Month.</i>	<i>Cases.</i>	<i>Deaths.</i>	<i>Counties Invaded.</i>
July, 1915.....	149	17	37
July, 1916.....	223	37	53
August, 1915.....	241	46	54
August, 1916.....	940	81	69
September, 1915.....	278	58	55
September, 1916.....	657	120	76
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Total, 1915.....	668	121	146
Total, 1916.....	1,820	238	198

## VISITS OF THE SECRETARY.

## THE SECRETARY MADE THE FOLLOWING VISITS:

*July 3, Greenfield.*—This visit was made on account of an invitation from the Hancock Medical Society to attend a special session which would be given up to a discussion of infantile paralysis. Dr. Bruner of Greenfield, held a clinic showing five cases of the disease. I was called upon to give to the society the status of the disease in the United States and in Indiana, and took occasion to express the fear that with the coming of next summer we might have a real epidemic in Indiana.

*July 8, Rising Sun.*—After several invitations received from the mayor of Rising Sun and the school authorities, I visited this city on July 8. On Sunday, July 9, I gave two talks, the first in the Methodist Episcopal Church in the forenoon, and the second in the Presbyterian Church in the evening. The latter was illus-

trated. Large audiences were present upon both occasions. On Monday, July 10, I met with the mayor and members of the city council and discussed the sanitation and hygiene of the city. Some recommendations were made which if executed would improve matters very materially.

*July 22, Oaklondon.*—This was to participate in the laying of the corner stone of the Marion County Tuberculosis Hospital. A large crowd was in attendance. The oration was delivered by Mr. George Thomas Talmer, president of the Illinois Society for the Prevention of Tuberculosis. The hospital is to cost \$80,000 and will have 80 beds, and will be conducted according to the latest developments of science.

*September 9, Greencastle.*—This visit was for the purpose of conferring with Dr. J. M. King, the city health officer and county health commissioner in regard to poliomyelitis and several sanitary problems he had on hand. All the points in question were satisfactorily settled and the results since the visit have been reported by Dr. King as satisfactory in every way.

*September 18, New Castle.*—Upon invitation of the mayor and city council I went to New Castle to first make a sanitary survey of the city with special reference to a small creek or branch which runs right through the residence district. There is much surface drainage and many private sewers connected with this small branch and in consequence it becomes exceedingly noisome, generates flies and is a menace to the public health. It is necessary to arouse public opinion in favor of doing away with this open sewer before the council felt at liberty to act. The aid of the State Board of Health was therefore invoked by the council and it is now proceeding with the preliminary steps necessary to transform the present open branch into a covered sewer.

*September 20, Franklin.*—This visit was made to confer with Dr. Oran Province, the county health commissioner; also Dr. L. L. Whitesides, the city health officer, in regard to sanitary conditions. A cemetery partly within the corporation of the city was investigated and its probable influence upon the public health considered. We also made an inspection of the new Masonic Orphans Home established at Franklin. The water supply and the sewer system were considered and recommendations made. During the visit I spoke upon the subject of hygiene and the work of the State Board of Health to the students of Franklin College, and also upon the same subject in the afternoon to the high school students.



*September 25, Auburn, Pleasant Lake, Fort Wayne.*—I visited Auburn in response to an invitation from the mayor, Hon. J. Y. W. McClellan and the city council. Here was found a problem very similar to the one at New Castle. A creek runs through the center of the city. Five sewers empty into this creek and it receives much surface drainage. Like the creek at New Castle it has become a nuisance to the public health. Public opinion was not quite strong enough to demand or rather support the city council in the expenditure of money necessary to cover this open sewer. A public meeting was held and large audience attended. The matter was discussed in every phase and a resolution was passed by the public meeting urging the city council to employ an engineer to make a proper survey and determine the probable cost of the improvement. The resolution also expressed the opinion that the stream should be covered and made into a sewer. The further question of constructing sewage disposal plant was discussed. This, too, was recommended by the public meeting.

At Pleasant Lake the following day I met with the health officer, Dr. G. N. Lake, in regard to the sanitation of the town. I spoke before the woman's organization and also before the high school and in the evening before a large audience that filled the Methodist Church. My evening lecture was illustrated. From the expression of the citizens, I conclude the visit and advice given were fully appreciated.

At Fort Wayne I attended the annual meeting of the Indiana Medical Association. The session continued for two days. There was a large attendance and the usual number of papers were read.

The following resolutions pertaining to public health were unanimously passed by the Association:

#### ALL-TIME HEALTH OFFICERS AND CHILD HYGIENE.

*Whereas:* It is one of the duties of scientific medicine to instruct and lead the public in matters pertaining to hygiene and the public health, therefore be it

*Resolved,* That the Indiana State Medical Association indorses and recommends to the people and the law making powers, the enactment of a statute creating all time professional health officers throughout the State, and it also recommends, that, a division of Child Hygiene be established under the State Board of Health for the better conservation of the health and lives of the children of the State.

## HEALTH SUPERVISION OF SCHOOL CHILDREN.

*Whereas*, Scientific research has disclosed that sixty to eighty per cent of all school children need medical and dental attention to a greater or less degree, and because of lack of such care, large numbers suffer greatly and are retarded in their physical and mental development, therefore be it

*Resolved*, That the Indiana State Medical Association strongly recommend to the people and the legislature the enactment of a law making health supervision of the school children compulsory.

Another resolution of moment, and to be properly recorded here was that recommending to the legislature an appropriation of sufficient and proper sum of money to construct an adequate medical school building upon the grounds of the Long Hospital. It seems to me it would be most proper and becoming for the State Board of Health to pass a recommendation of like character. The necessity for an adequate medical college building on account of the progress of medicine in Indiana and the public health cause is very apparent to any one who will consider the facts. The present building is old, badly worn out and is not up-to-date. Neither is it large enough. Indiana should have a flourishing, strong, medical school. The state should raise its own doctors and not depend upon adjoining states.

## MEDICAL SCHOOL.

*Whereas*, The health of its citizens is one of the most valuable assets of the state, and

*Whereas*, The health of the citizens is best protected where the well are best guarded from illness by the intelligent application of the truths of preventive medicine, and the sick receive the most skilled treatment, and

*Whereas*, The success of both of these measures is determined in large measure by the standard of education of the doctors who serve their community as practicing physicians and health officers, and

*Whereas*, The State of Indiana has assumed the responsibility of medical education within its borders,

*Be it Resolved*, That we, the members of the Indiana State Medical Association, express to the members of the State Legislature our firm conviction that the state of Indiana should provide adequately for the education of medical students. As one means of furthering this, we heartily recommend to the State Legislature that sufficient appropriation be made for a suitable medical school building as the present building is antiquated and thoroughly inadequate.

The drinking cup order passed by the State Board of Health at its last meeting was duly promulgated and is being enforced throughout the state. As yet the cup is not universally abolished and incidentally we might mention that despite the strong statute against the same, thieving is also existing. Your secretary believes that within another year common cups will be a curiosity throughout all Indiana.

#### SPECIAL LETTER.

##### *Poliomyelitis.*

Dear Doctor:

The epidemic of poliomyelitis in New York is serious. It is spreading along lines of travel. Indiana is in danger. Three cases are reported this day. You must be extra diligent in trying to prevent an epidemic in Indiana.

Ask all physicians in your area to cooperate with you and promptly report all cases they find. Rigid quarantine must be imposed. Funerals must be private. In face of this danger, every physician should reinform himself in regard to infantile paralysis and in diagnosis make special study of each case having poliomyelitis in view. Advise your people to give special attention to preserving the health of their children. Children must be kept well. Daily bathing, plenty of fresh air night and day, plain food, exercise and play, plenty of sleep, attention to bowels,—all these make for prevention. *Don't fail to report to State Board.*

Respectfully,

J. N. HURTY,

State Health Commissioner.

By order of the Indiana State Board of Health.  
July 7, 1916.

The Secretary's report ordered spread of record.

#### REPORT OF ASSISTANT SECRETARY FOR THE FOURTH FISCAL AND THIRD STATISTICAL QUARTER, BOTH ENDING SEPTEMBER 30, 1916.

*July 4 to July 8.*—I attended the meeting of the American School Hygiene Association in New York City. This meeting was held in connection with the meeting of the National Educational Association which was perhaps the largest organization of an educational nature in the world. Meetings of the School Hygiene Association were both interesting and instructive, while the general sessions of the N. E. A. added materially to the value of the meeting.

*July 8 to July 28.*—I was absent on vacation, the first real vacation since I have been connected with the State Board of Health.

*August 10.*—I visited Gosport and in company with the township trustee, James L. Dunnigan, made a sanitary survey of the proposed school site.

*August 17.*—I attended a conference in Washington with the U. S. Public Health Service in reference to interstate and intrastate control of poliomyelitis. This conference was called by Surgeon General Blue of the Public Health Service and I was delegated to attend the conference by Governor Ralston. Representatives of 32 state boards of health were in attendance and complete reports were given of the outbreak and epidemic of poliomyelitis in New York City and adjoining states. Resolutions bearing on the control of the disease with instructions to health officials, railroad officials and all others directly concerned in such control were adopted.

*August 24.*—I went to Peru to give an address before the Miami County Teachers' Institute. This address was well received by the teachers.

*September 25.*—I went to Martinsville and in company with Dr. Breedlove, county health commissioner, made a sanitary survey of the temporary buildings to be used for school purposes at Brooklyn. The Brooklyn school building was destroyed by fire shortly after the close of school and because of differences between the trustee and the advisory board it has been impossible to construct a new building. The trustee had rented two residences in the town of Brooklyn and had fitted them up for school purposes as best he could. In the main his efforts were approved, and additional instructions were issued.

*September 19.*—In company with John Walsh, state factory inspector, I visited Maxwell and made a sanitary survey of the old school building together with an inspection of the new school building partially completed. Orders were issued to the trustee by the state factory inspector, and also at my suggestion by the state board of health.

*September 28.*—I visited Jamestown and gave a public address on sanitation in a small town in connection with a chautauqua program. The meeting was attended by a good audience and splendid interest was manifest.

#### QUARTERLY REPORT OF STATE LABORATORY OF HYGIENE.

One of the difficulties in getting laboratory work done is the variability in number of the different kinds of specimens to be examined. The first quarter comprising October, November

and December consists largely of diphtheria specimens; the second quarter of sputum specimens; the third quarter is very light for all kinds of specimens while the fourth quarter consists largely of blood specimens for typhoid fever. During the fourth quarter there were almost 2,000 blood examinations made for positive Widal. In addition to this there was a tremendous demand for typhoid vaccine.

Owing to a severe epidemic of typhoid fever among children of school age in Indianapolis, the City Board of Health thought it best to compel every child to be vaccinated before entering school.

The Bacteriological Laboratory of the Indiana State Board of Health has been administering typhoid vaccine free of charge to everybody that applied for it ever since the flood in Indianapolis. No provision being made by the City Board of Health for free vaccination, great numbers of school children applied to the State laboratory for the prophylactic treatment. The thing which made our work so difficult was that most children waited until school opened before applying for treatment.

On the afternoon of the first Monday of school the laboratory staff vaccinated more than 3,000 children. The school board demanded certificates of vaccination and these certificates required considerable time and extra work.

We believe that a conservative estimate of the number vaccinated during six weeks is 15,000 to 20,000 persons. The most gratifying thing is that although no selection of children was made, no severe injury occurred in any of the children. There were a few subcutaneous abscesses which all occurred on the morning of one day.

The work of the laboratory forced the vaccine men to cut the price of vaccine to one-third its former price and also compelled the physicians to vaccinate for their usual office fee, where they before had been charging from \$5.00 to \$10.00 an injection.

The vaccine given the school children consisted of both the typhoid and the paratyphoid bacilli. The Indiana State Militia were the first soldiers in the United States to receive a paratyphoid vaccine and the school children of Indianapolis the first school children to be treated with the mixed vaccine.

One very gratifying thing to us is that no case of typhoid or paratyphoid has occurred subsequent to vaccination by this laboratory, while a few persons vaccinated with the commercial product have developed typhoid subsequently.

REPORT OF THE EPIDEMIOLOGIST FOR THE QUARTER ENDING  
SEPTEMBER 30, 1916.

July 3, I went from Sylvan Lake to LaGrange and called upon Dr. A. R. Wyatt, town health officer of LaGrange and LaGrange county.

July 5 to 16, was spent in the bacteriological laboratory during the absence of Dr. Anderson.

July 20, I gave a short talk before the students of the Purdue University Summer School upon the health education work of the State Board of Health. As this summer school is composed practically entirely of Indiana teachers, I met a lively interest in an offer on the behalf of the State Board of Health to assist teachers in the work of Hygiene and Public Health Education.

I called upon Dr. R. M. Campbell, county health commissioner, Dr. Levering, acting city health officer, and Dr. W. R. Moffett, health officer of West Lafayette.

July 23, I investigated an epidemic of sore throat at Lake Wawasee. I found this infection had been endemic in one hotel for nearly two months, with a marked epidemic since July 5. The infections were undoubtedly due to contact as common drinking cups were being used in the hotel. The isolation of the patients had been given little attention and the dining room and soda fountain dishes had not been sterilized.

July 31, I went to Huntington to assist Dr. A. H. Estabrook in county survey of feeble-minded, insane and epileptic under the direction of the State Board of Charities, and the Governor's Committee.

August 1 to 3 was devoted to the county survey of feeble-minded, insane and epileptic in Huntington County.

August 4 I visited the state institution of feeble-minded in company with the investigating representative of the State Board of Charities. The day was spent in obtaining family histories of inmates from Huntington County.

August 5 to 6 was spent in Shelbyville putting up a public health exhibit at the Shelby County Chautauqua.

August 7 returned to Huntington for further work on the county survey.

August 11, investigated two typhoid outbreaks at Newburgh, Yankeetown and vicinity.

August 12 to 23 was devoted to the investigation and control of the epidemic of typhoid fever at Evansville.

August 24, I visited Machey and Sommerville to investigate another outbreak of typhoid fever.

August 25, went to Chicago to discuss the typhoid situation in Lake County, Indiana, with the Chicago Health Department. From Chicago went to Winamac where an epidemic of typhoid fever was investigated.

August 28, went to Lake County where the remainder of the month was spent in studying the conditions in East Chicago, Indiana Harbor, Whiting, Hammond, Gary which have a bearing on their typhoid rate. One half day in Gary was devoted to investigation of several suspected cases of trachoma.

Considerable time during September has been devoted to the preparation of reports of the epidemic studied during August, to correspondence, and attention to the poliomyelitis situation.

September 9. A sanitary survey was made of a city block in Shelbyville under the direction of Dr. Hurty.

September 12. At the request of Dr. C. A. Zinn, deputy Health Officer at Frankfort, I went to Mulberry to see a case of infantile paralysis. The diagnosis of the case had been questioned because of a fall that the child had had the day before the disease developed.

September 14 to 22 was taken for a vacation.

September 27 was spent in the bacteriological laboratory in the absence of Drs. Shimer and Schweitzer.

September 28 to 30 I attended the meeting of the State Medical Society at Fort Wayne.

September 28 at the request of Dr. C. A. Cooper of Carmel I examined a case of poliomyelitis in that town. This patient was a child who could not be persuaded to talk. Prostration was so very marked that paralysis was difficult to detect but after a careful examination paralysis was found both in the legs and in the left pectoral muscles.

#### ABSTRACT OF REPORT OF THE WORK OF FOOD, DRUG AND WATER LABORATORIES FOR THE QUARTER ENDING SEPTEMBER 30.

Food inspectors have given some time to special studies such as condition of milk supplies, both in collection of large numbers of miscellaneous samples and in special surveys of certain towns. A very complete survey of the milk supply of Bloomington has been made. In this city as in many other Indiana cities public opinion or careless city management has delayed the work of

competent milk inspectors. Canning factories of the state have been visited and proper suggestions made when necessary. It is a matter of satisfaction that the Indiana canners are conducting their plants in conformity with the sanitary food law and the rules and regulations of the State Board of Health. Sanitary toilets have taken the place of noisome outhouses. Drinking water is supplied from bubble fountains or sanitary cups. The chemists have given their attention to the study of milks, ice creams, summer drinks and the constant stream of miscellaneous samples which flow toward the laboratories during the hot weather. Many samples of meats, milks, cheese and ice cream suspected of producing ptomaine poisoning or intestinal disturbances, have been examined in every instance with negative results.

Inspector Cohn has completed his survey of the hotels of the state. In general he finds them in good condition. Proprietors realize the necessity for sanitary kitchens, and dining rooms and only occasionally are operating unfit places.

Inspector Bruner has completed his survey of the plants manufacturing dairy products. In all 563 dairy plants of various kinds have been inspected. Of these three have burned since inspection, two creameries and one ice cream plant. By this time next year we are confident that all creameries and ice cream plants will be provided with pasteurizing apparatus. At the present time only one-thirteenth of the total number use pasteurizing apparatus. 96 milk depots sold last year 13,213,448 gallons of milk, of which 96.1% was pasteurized. Fifteen small plants of this series did not pasteurize. 95 cream stations have been inspected and from these butter fat has been shipped out of the state in quantity to make more than three and one-half million pounds of butter, 13 plants produced condensed milk to the amount of 347,553 gallons. One new plant will open at Yorktown very soon with the product from 3,500 cows. Two cheese factories inspected manufactured last year 125,942 pounds of cheese. These cheese factories from the sanitary standpoint were excellent. There yet remains 8 counties to be inspected.

A survey of 24,919 farms in northern and central Indiana comprising parts of 22 counties shows the following:

21 farms had no cows.  
 2655 farms had one cow.  
 6097 farms had two cows.  
 5674 farms had three cows.



4440 farms had four cows.  
2616 farms had five cows.  
1449 farms had six cows.  
3355 farms had eight or nine cows.  
399 farms had ten or eleven cows.  
213 farms had over 12 cows.

A careful consideration of the above statistics will disclose the fact that about one-half of the farms own one or two cows.

*Medical Inspection.* From every part of the state are received medical inspection blanks fully filled out. In most of the large cities practically every food handler has been examined. In some cities the health officers and inspectors have been so thorough in requiring the examination that even the farmers who bring in vegetables have received certificates. Without doubt inspectors and health officers have been unreasonable in their requirements in instances. In many cases the examinations have been made carelessly and perhaps dishonestly. As many as forty certificates all signed by the same physician on the same day have been received. Of course, the physician who signed the certificates did not make any examination at all. By January the rule requiring medical examination of food handlers will have been in effect for one year.

*The Water Supply* of the state, so far as the sanitary condition is concerned is charged upon the State Board of Health. It is held responsible for the qualities of these supplies. We do not have any means by which we can determine the efficiency of purification plants or systems except as we learn the facts by occasional surveys. This condition throws upon us grave responsibilities and warrants more stringent action on our part. To meet the situation a report card has been designed and submitted for the Board's approval. The idea is that the same shall be filled out and returned to the State Board each week by local water works superintendents. Several water works superintendents have approved this method of handling the situation. They promise a means by which the State Board of Health can know instead of guessing at the way plants are being operated. A rule governing this matter has been recommended as follows:

*Ordered:* The superintendents of all water works plants operated or maintaining chemical precipitation or purific plants shall, on Monday of each week, report to the State Board of Health the following facts, to wit:

daily pumpage, pounds of chemicals and grains per gallon used each day, any unusual conditions that may have affected pumpage, character of the raw water, quality of the treated water during the week previous ending Saturday at midnight.

*Ordered:* The site of the school building at Guilford, York township, Dearborn county, known as district No. 1, is herewith condemned as unsanitary and in all ways unfit for school house purposes.

*Ordered:* The secretary is herewith given power or authority to revoke if in his opinion it is for the best interest of the school, the extension of condemnation against the Maxwell school building in Hancock county.

*Ordered:* Free typhoid vaccination shall hereafter be given in the laboratories of the State Board of Health only to those school children who bring signed letters from their teachers or school superintendent stating their parents are too poor to stand the cost of vaccination. Only those adults shall be vaccinated free of charge who give acceptable evidence that they are too poor to pay for the same. The secretary is instructed to transmit this order to the superintendent of the laboratory of hygiene.

*Ordered:* All members of the board and also all heads departments are herewith made delegates from the State Board of Health to attend the annual meeting of the American Public Health Association to be held at Cincinnati, October 25, 26 and 27. The expenses for the same to be paid out of the appropriate funds assigned to the departments represented.

*Ordered:* The secretary shall be a delegate from the State Board of Health to attend the annual meeting of the National Social Hygiene Association to be held at St. Louis, November 20, his expenses to be paid out of the board funds.

*Ordered:* Dr. Ada Schweitzer shall represent the State Board of Health at the annual meeting of the National Association for the prevention of Infant Mortality to be held at Milwaukee, October 19 and 20, 1916. Her expenses shall be paid out of the fund for the laboratory of hygiene.

*Ordered:* Dr. H. E. Barnard shall represent the State Board of Health as its delegate at the National Dairy Show and International Association of Dairy and Milk

Inspectors at Springfield, Massachusetts, October 15 and 19 and he also shall represent the State Board of Health as delegate at the meeting of the Federal Standards Commission at New York October 16, his expenses to be paid out of the fund of the department of food and drugs.

*Ordered:* Dr. H. E. Barnard is appointed a delegate to attend the annual meeting of the Association of Official Agricultural chemists to be held at Washington, and at the same time to attend the meeting of the Federal Standards Commission. His expenses to be paid out of the fund for the department of food and drugs.

*Ordered:* Superintendents of all water works plants operating or maintaining chemical precipitation or purification plants shall on Monday of each week report to the State Board of Health the following facts, to wit: daily pumpage, pounds of chemical and grains per gallon used each day, any unusual conditions that may have affected pumpage, character of the raw water, quality of the treated water during the week previous ending Saturday night. The above data shall be transmitted upon a blank furnished from the department.

*Ordered:* The secretary shall communicate with the trustees and superintendent of the state tuberculosis hospital in regard to the reporting to the state board of health certain facts concerning all patients discharged from said institution. The secretary shall compile a blank including the score of the above report as ordered.

*Ordered:* A special meeting of the state board of health shall be held Monday October 16, to attend the Indiana Conference on Mental Defectives and also to transact any business which may come before the board.

## **SPECIAL MEETING OF THE INDIANA STATE BOARD OF HEALTH.**

OCTOBER 16, 1916.

The meeting was called to order in the Moorish Room of the Claypool Hotel, at 7:50 p. m.

Present: Drs. Boyers, Freeland, Hurty, Sutton.

The president announced the object of the meeting was to enable the members to attend the Indiana Conference on Mental Defectives and to take part in the work they propose to do.

The secretary reported a suggestion made by Dr. Mitchell and recommended that the same be adopted. As it is to be feared that poliomyelitis will likely become epidemic next summer and if it does a number of children and adults may possibly be made permanent cripples, Dr. Mitchell proposed that the State Board of Health suggest to the various medical societies of the state that they hold this winter a symposium upon poliomyelitis, and as a fitting conclusion to the symposium that they organize a poliomyelitis clinic. The object of the clinic would be to give after-treatment to the victims of poliomyelitis within their jurisdiction who were too poor to employ medical help. The proposition was fully discussed and finally it was

*Ordered:* The secretary shall prepare and send a letter to all county medical societies in the state recommending in the name of the State Board of Health, that all said societies, at their convenience, appoint a special session for holding a symposium on poliomyelitis. Further, that the State Board of Health recommends to said societies, that they organize a special polio clinic to which very poor families may apply for free treatment for the after effects of the disease. All of this being to the end that life may be saved and deformity prevented.

*Ordered:* The State Board of Health shall hold a special meeting at 12:15 p. m., in the Moorish Room of the Claypool Hotel, October 17, to continue attendance and cooperation with the Indiana Conference on Mental Defectives and to take up such other business as might come before the board.

There being no further business, the board adjourned.

## SPECIAL MEETING OF THE STATE BOARD OF HEALTH.

OCTOBER 17, 1916.

According to the order of the board, a special meeting was held in the Moorish Room of the Claypool Hotel at 12:15 p. m., October 17, 1916.

Called to order by President Boyers.

Present: Drs. Boyers, Freeland, Sutton, Kern, Hurty.

The members expressed themselves as highly edified with the Conference on Mental Defectives, the secretary speaking and taking an active part. It was the unanimous opinion that the conference considered a subject of the greatest importance to the public health, or rather the public health was of great importance to it.

After due discussion the following resolution was adopted:

*Whereas:* Frequent complaints have come to the members of the State Board of Health from citizens, of this state concerning the dirty and unsanitary offices of doctors of medicine and of dentists and the members of these professions who are personally unclean and whereas such dirty and unsanitary conditions are not infrequent therefore be it

*Resolved:* That the State Board of Health of Indiana is sincerely sorry that such unclean and unsanitary doctors' and dentists' offices exist in our state and also that doctors and dentists are frequently seen who are unclean and unsanitary in their persons and habits, hence we urge all physicians and dentists and especially health officers to keep their offices in a sanitary condition and to be clean in person and habit so that the public may look up to them as examples of clean and right living. And be it further resolved that we respectfully urge the great body of physicians and dentists who are or who are not clean and sanitary themselves to give their hearty support to the State Board of Health in this very important matter and by thus doing deserve the highest standard of respect as leaders of public thought and progress.

*Ordered:* The State Board of Health shall hold a special meeting at 12:15 Wednesday, October 18, the object of the same being to attend the annual meeting of the Child Hygiene Association, to take part in the proceedings, and to offer the services of the State Board of Health in anything it could do to further the cause of child hygiene. The object of the special meeting would also be to consider any other matters which might be brought before the board. There being no further business, the board adjourned.

## **SPECIAL MEETING OF THE INDIANA STATE BOARD OF HEALTH.**

OCTOBER 18, 1916.

The meeting was held as per order of the previous day in the Moorish Room at the Claypool Hotel and was called to order by President Boyers at 12:15 p. m.

The president announced the object of the meeting was to attend the sixth annual conference of the Children's Bureau of Indiana and participate in the proceedings.

Present: Drs. Boyers, Kern, Freeland, Sutton, Hurty.

Dr. Kern as per appointment reported that the annual conference of the Children's Bureau of Indiana was called to order October 17 at 8 p. m., and that the session on October 18 was continued from the previous one. He announced that President Rabbi Fuerlicht had made a most excellent address. His appeal was for the care and protection of children. The address on the problem of the feeble-minded child by Prof. Johnston, Superintendent of the school for Feeble-minded at Vineland, New Jersey, was exceedingly valuable. The other members agreed with Dr. Kern in this report.

The secretary announced that several letters and many verbal complaints had been received on account of the bad ventilation and lighting and general sanitary conditions of the medical college building of the Indiana University, situated on the corner of Senate Avenue and Market Street. He further announced he had received a request from the authorities of the college asking the State Board of Health to make a sanitary inspection of the building and to take such action as the board deemed proper. That morning President Boyers, vice-president Sutton and Secretary Hurty made an inspection of the college building and recommended a resolution embodying the views of the state board of health. The secretary said he was informed it would be impossible for the state board to condemn the building because it is state property and the power to condemn state property lies solely with the legislature.

After full discussion of the matter the following resolution was adopted:

### **RESOLUTION.**

*Whereas:* The authorities of the Indiana Medical College requested the State Board of Health to make an inspection of the

college building, and take such action as may be deemed necessary, therefore such inspection was made, and in accordance with findings the following resolution was adopted:

*Resolved*, As inspection of the building used for the medical school and belonging to the state, at the corner of Senate Avenue and Market Street, Indianapolis, shows the same to be insanitary, and because of wear and primary wrong construction cannot be kept sanitary, therefore it is the opinion of the State Board of Health that new and proper buildings for the medical department of the State University should be constructed, and we recommend to the Governor and legislature that a proper appropriation be made for this purpose. And be it further

*Resolved*, That in the opinion of the State Board of Health the present building is far from being an honor to the state; for it is badly located for a medical college building; it is poorly planned; the stairways are dangerous; it is an evident fire hazzard; its floors are badly worn and splintered and is rapidly reaching a state of dilapidation. For these reason also, the State Board of Health recommends a proper appropriation for the construction of a new building or buildings which would be an honor to the state and be suitable for the very important work of medical education.

#### PREVENTION OF INSANITY.

*Whereas*: The State Board of Health has been in attendance upon the Indiana Conference on Mental Defectives and officially taken notice of the discussions of the subject, and being impressed with its great importance economically, morally and socially to the state, therefore it is

*Resolved*: It is the opinion of the State Board of Health that the most vulnerable point of attack upon insanity would be the prevention of syphilis, the prevention of alcoholism, and health supervision of children. This resolution is made in accordance with the well known facts that the dreaded infectious childhood diseases, wrong feeding, malnutrition, and the failure to remove inherited and acquired defects frequently lead to insanity in adult age.

#### CRAWFORD COUNTY INFIRMARY.

Inspection made by A. W. Bruner.

The floors in the six rooms of this building are open, rotten, cannot be cleaned, are not impervious to water.

The light and ventilation is insufficient.

The building is of frame construction, with a metal roof, the older part has a poor stone foundation, while the newer part has no foundation.

The two story part of the building has been plastered, but the plaster is soft and rotten, full of holes and cracks and in many

places missing. The paper on the walls and ceilings in unsightly and insanitary, being ragged and torn, hanging loose and much of it gone.

The rooms occupied by these inmates have wood side walls and ceilings. The roof leaks in many places.

The building is heated by stoves but in my opinion cannot be kept comfortable in cold weather.

The toilets are in the yard and are an abomination.

The building is so old and dilapidated that it cannot be kept in a sanitary condition. It is so completely gone that it cannot be repaired and is so absolutely unfit for the care and comfort of the inmates as well as of the caretakers that the building should be condemned.

After full discussion of the above report, the following order was adopted:

*Ordered:* Having been proved to the satisfaction of the Indiana State Board of Health that the infirmary of Crawford County is old, dilapidated, unsafe, insanitary, and almost certainly infected with disease, that the same is herewith condemned according to the statutes. And it is further ordered that the said infirmary shall be abandoned and abated as a nuisance at the earliest moment possible on account of its being a menace to the public health.

#### A RURAL SANITARY SURVEY OF FOUR INDIANA COUNTIES.

The counties surveyed were: Blackford, Ohio, Scott, and Union. Incorporated towns and cities were not inspected, because the survey was entirely rural. The total population of the four counties for 1915 according to the U. S. Census method is 35,436, the rural population being 24,650 or 69.5%. The total area is 605 square miles. Inhabitants per square mile 56.8. Compared with the population of 1905, that of 1915 shows a decrease of 4,447. There is also a decrease in the number of school children as follows: In 1905 children of school age number 10,918; in 1915, 9,510; decrease 1,408 or 12.8%.



## STATISTICS OF COUNTIES SURVEYED.

## POPULATION.

Counties	Population		Increase or Decrease	Percent of increase or decrease
	1905	1915		
Blackford.....	19,914	16,120	3,794 dec.	10.8% decrease
Ohio.....	4,724	4,329	398 dec.	8.2% decrease
Scott.....	8,487	8,727	230 inc.	2.7% increase
Union.....	6,748	6,260	488 dec.	7.2% decrease

## SCHOOL CHILDREN.

Counties	Population		Increase or Decrease	Percent of increase or decrease
	1905	1915		
Blackford.....	5,314	4,529	785 dec.	14.7% decrease
Ohio.....	1,304	968	336 dec.	25.1% decrease
Scott.....	2,676	2,626	50 dec.	1.8% decrease
Union.....	1,624	1,387	237 dec.	14.6% decrease

## DEATH, BIRTH AND MORTALITY RATES FOR 10 YEARS.

Counties	Death Rate 1,000	Birth Rate 1,000	Consumption Rate 100,000	Typhoid Rate 100,000
Blackford.....	11.0	22.9	128.4	15.0
Ohio.....	13.3	15.6	183.2	28.2
Scott.....	12.3	21.5	206.0	27.9
Union.....	13.6	19.3	176.3	13.7
State.....	13.1	20.3	157.7	27.9

## SEASONS, LENGTH OF TIME OF SURVEYS.

The surveys were made during the summer and fall of 1915, and the work was done by two men who were thoroughly instructed and whose proficiency, of course, increased with experi-

ence. These inspectors visited every farm house in the counties named, making a careful survey of each and their findings are herewith reported.

#### METHOD OF SURVEY.

After several trials of different proposed methods, it was finally determined to adopt a very simple score card based upon only ten points, each to have ten for its highest figure. The total would then be 100 for a house that was perfect in its hygiene and sanitation, and the total of the scores allowed by the surveyor would be the percentage standing. It was believed to be just to allow a 25% (twenty-five per cent) margin for the standard and call all homes insanitary which scored under 75%.

The points scored were: (1) site; (2) sanitary conditions; (3) house; (4) cellar; (5) ventilation; (6) water supply; (7) sewage disposal; (8) barn, barnyard, pig pen, coops; (9) disposal of manure; (10) health; remarks.

#### SCORING.

The written instructions for scoring were as follows: (1) *Site*. To score 10, the site must be really good, rather high, good natural drainage or else tile drained or ditched. At least a few trees, pleasant, attractive.

(2) *Sanitary Condition of Premises*. To score 10, premises must be reasonably clean. Not littered, no trash of any amount; order, no confusion must prevail. No sodden or muddy places, cleanliness apparent. Garbage disposed of decently.

(3) *House*. To score 10 the house must not be dilapidated. Passable repair, first floor at least two feet above the ground level and ventilated beneath. Interior must be clean and no insanitary smells or odors. Halls and ceilings in good condition; carpets, furniture and beds clean. There must be a general air of cleanliness and comfort.

(4) *Cellar*. To score 10, cellar must be dry, clean, well lighted and ventilated. No decayed vegetables, no trash, no musty or other smells.

(5) *Ventilation*. To score 10, windows must be in condition to easily open and close. Ask if in cool and cold weather the house is aired at least once daily and if bed room windows are *opened wide* at night. If not, the score is 0 unless the house is heated with grates or fire places and the door and windows fit loosely, then the score is 5.

(6) *Water Supply.* If dug well, score 0. If driven, drilled or bored, not less than twenty deep, good well-curb either of wood, cement, stone or brick, passable waste trough or drain and at least 100 feet distant privy; score 10, unless analysis is bad.

(7) *Sewage Disposal.* If by privy with or without pit, when filthy, if old, dilapidated, not screened, markedly odorous, score 0. If by septic tank or underground disposal and working satisfactorily, score 10. If privy has a pit, is in good repair, if properly screened, pit not over three-fourths full, not malodorous, then score 10.

(8) *Barn, barnyard, piggens, coops.* To score 10, barn must be in reasonable repair and reasonably clean, barnyard must be reasonably well drained, clean and free from trash and litter. Pig pens and chicken coops must be at least 50 feet from house, and not filthy and malodorous.

(9) *Disposal of Manure.* To score 10, the manure must be removed every day during spring, summer and autumn and spread upon the ground, or it must be kept in fly tight, covered pits or bins. Accumulations of unprotected manure score 0.

(10) *Health.* To score 10, the health of the family must have been good for the preceding two years. One or more cases of typhoid, consumption, dysentery, influenza, severe rheumatism, apoplexy, or paralysis or dyspepsia make the general family health score 0. In scoring health, if infectious diseases have existed within two years, each disease (not each case) cuts off two points.

*Inspectors* must use their best judgment and common sense in scoring. If any points appear not named in the directions record the same under remarks, or work them into the score according to reason.

*Results.* The results obtained are herewith presented separately for each county.

#### BLACKFORD COUNTY.

Population of 1905, 19,914; in 1915, 16,120. Decrease 3,794; percent of decrease 10.8%. Area 168 square miles. Population per square mile 94.2. School children in 1905, 5,314; in 1915, 4,529, decrease 784, equals 14.7%. 1,374 surveys were made, every township represented. Of the 1,374 farm houses inspected 206 scored 75 or over, none reaching 100%. The lowest score being 10%. and the highest 99%. The remaining 1,068 scored

from 75% downward and as low as 10%. It therefore appears that about one-seventh (15.0%) were found sanitary and 84% insanitary. The average score for the entire county being 53%. Only on one point, namely health, did the average score rise to 75% and above.

In the matter of sewage disposal, the score was 43%, and the average water supply score was 72%. It is the awful privy, the polluted well, and the heaps of manure contiguous to the average farm house inspected in Blackford county which threatens sickness and disease and drags down the average sanitary score. The average death rate of Blackford county for the last ten years is 11.0 against 13.1 for the state. The birth rate is 22.9 and the state rate is 20.3, a difference of 2.6 in favor of the county. The consumption death rate is 128.4 while the state rate is 157.7. The typhoid death rate is 15.0 against 27.9 for the state, a difference of 12.9 in favor of the county.

*Summary:* A review of the points presented shows that 84% of the farm houses surveyed in Blackford county are insanitary. that the said county has a lower death rate than the state by 2.1; has a higher birth rate than the state by 2.6; has a lower tuberculosis death rate by 29.3; and a lower typhoid rate by 12.9 than the state. The population decreased 10.8% and the number of school children decreased 14.7% in the 10 years ending in 1915.

	<i>Blackford County</i>	<i>State</i>
*Insanity rate per 10,000.....	11.7	20.6
Penal rate per 10,000.....	9.9	15.1
Dependent children rate per 10,000.....	9.9	11.1
Feeble-minded } rate per 10,000 .....	4.9	8.9
Epileptic .... }		

#### OHIO COUNTY.

Population in 1905, 4,724; in 1915, 4,329. Decrease 398; percent of decrease 8.2%. Area 85 square miles. Population per square mile 50.9. School children in 1905, 1,304; in 1915, 968; decrease 336, equals 25.1%. Four hundred forty one surveys were made, every township being represented. Of the 441 homes inspected, 66 scored 75% or over, none reaching 100%; the lowest score being 19 and the highest 97. The remaining 375 scored from 75% downward as low as 19%. It therefore appears that 14%

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\*These rates are for institutions only, and do not include those under private and home care.

were found sanitary and 86% insanitary; the average score for the entire country being 54%. On no point did the average score rise to 75%. In the matter of sewage disposal, the average score was 32%; the average water supply score, 15%; and the manure disposal, 22%. It is the awful insanitary privy, the polluted well, the unventilated houses and the heaps of manure contiguous to the farm houses inspected which drag down the average sanitary score. The average death rate of Ohio county for the last ten years is 13.3, against 13.1 for the state. The birth rate is 15.6 against 20.3 for the state. The consumption rate is 183.2 against 157.7 for the state, a difference of 25.5 against the county. The typhoid rate is 28.2 against 27.9 for the state, a difference of 0.3%.

*Summary:* A review of the points considered shows that 86% of the farm houses surveyed in Ohio county are insanitary, that the death rate is higher than the state rate by 0.2 in 1,000; that the consumption rate is higher than the state by 25.5, and the typhoid rate is higher by 0.3 in the 100,000. The birth rate is also lower by 4.7 than the state rate.

	<i>Ohio County</i>	<i>State</i>
Insanity rate per 10,000.....	16.1	20.6
Penal rate per 10,000.....	4.6	15.1
Dependent children rate per 10,000.....	.....	11.1
Feeble-minded } rate per 10,000.....	4.6	8.9
Epileptic ..... }		

#### SCOTT COUNTY.

Population in 1915, 8,497; in 1910, 8,727. Increase 230. Percent of increase, 2.7%. Area 190 square miles. Population per square mile 48.8. School children in 1905, 2,676; in 1915, 2,626. Decrease 50. Percent of decrease 1.8%. Nine hundred forty-five surveys were made, every township being represented. Of the 945 homes inspected, 23 scored 75% and over, only one reaching 100%. The lowest score was 10% and the highest 100%. The remaining 922 scored 75% downward as low as 10%. It therefore appears that 2.4% were found sanitary and 97.6% insanitary, the average score for the county being 43%. Only on two points, namely, site and general health, did the average score rise to 75% and over. On the matter of sewage disposal, the average score was 17%; the average water supply score was 29% and the manure disposal score was 11%. It is the awful insanitary privy, the polluted well and the heaps

of manure contiguous to the farm houses inspected which drag down the average sanitary score. The average death rate of Scott county for the last ten years is 12.3 against 13.1 for the state. The birth rate is 21.5 against 20.3 for the state. The consumption death rate is 206.0 against 157.7 for the state, a difference of 48.3 against the county. The typhoid rate is 27.9 the same as the state rate.

*Summary:* A review of the points considered shows that 97.6% of the farms surveyed in Scott county are insanitary, that the death rate is lower than the state rate by .8 in 1,000; that the consumption rate is 48.3% higher than the state rate, and the typhoid rate is the same as the state rate. The birth rate is higher by 1.2 than the rate for the state. The population increased 2.7% and the number of school children decreased 1.8% in the last ten years, ending 1915.

	<i>Scott County</i>	<i>State</i>
Insanity rate per 10,000.....	17.3	20.6
Penal rate per 10,000.....	12.6	15.1
Dependent children per 10,000.....	2.2	11.1
Feeble-minded } Epileptic..... }	per 10,000..... 13.7	8.9

#### UNION COUNTY.

Population 1905, 6,748; in 1915, 6,260. Decrease 488. Percent of decrease 7.2%. Area 162 square miles. Population per square mile 38.6. School children in 1905, 1,624; in 1915, 1,387. Decrease 237. Percent of decrease 14.6%. Nine hundred eight surveys were made, every township being represented. Of the 908 homes surveyed, 21 scored 75% and over, none reaching 100%, the lowest score being 5% and the highest 90%. The remaining 887 scored from 75% downward as low as 5%. It therefore appears that 2.3% of the homes inspected were found sanitary and 97.7% insanitary, the average score being 52%. On three points, namely site, ventilation and health did the average score rise above 75%. In the matter of water supply the average score was 16%; the average sewage disposal score was 3.9%; and the average manure disposal score was 1%. It is the awful, insanitary privy, the polluted well, and the insanitary disposal of manure which drags down the average score. The average death rate in Union county for the last 10 years is 13.6 as against 13.1 for the state. The birth rate is 19.3 against 20.3 for the state. The consumption death rate is 176.3 in 100,000

against 157.7 for the state, a difference of 18.6 against the county. The typhoid rate is 13.7 in 100,000 against 27.9 for the state, a difference of 14.2 in favor of the county.

*Summary:* A review of the points considered show that 97.7% of the farm houses surveyed in Union county are insanitary, that the death rate is higher than the state rate by 0.5% in 1,000 that the consumption death rate is 18.6% higher, that the typhoid death rate is 14.2% lower than the state rate. The birth rate is 19.3 in 1,000 against the state rate 20.3 being 1.0% lower. The population decreased 7.2% and the number of school children decreased 14.6% in the ten years ending 1915.

	<i>Union County</i>	<i>State</i>
Insanity rate per 10,000.....	25.5	20.6
Penal rate per 10,000.....	15.9	15.1
Dependent children per 10,000.....	12.7	11.1
Feeble-minded } rate per 10,000.....	6.3	8.9
Epileptic..... }		

#### REMARKS.

The above facts supply an index for judging rural sanitary conditions in Indiana. From partial surveys made in certain other counties, it seems reasonable to conclude that the average figures of the state will be no higher than shown above. The State Board of Health hopes to make more of these surveys, but in the meantime enough facts have been secured to point out the sanitary weaknesses of many rural homes. If every farmer in Indiana would commence the new year with a pure water supply, with sanitary sewage disposal, with a clean barn and barnyard, and would several times daily flood his home with the pure air that surrounds him, then it is safe to say that disease would be enormously lessened, efficiency would be raised, the duration of life would be increased, and happiness would be promoted on the farm. It is believed further, that improvement in farm sanitation would very materially aid in keeping young people on the farm. Improvement in rural school sanitation would also materially aid in bringing the above named better conditions.

## TABLES.

(Average Scores.)

	Blackford County	Ohio County	Scott County	Union County
Life.....	70%	73%	76%	82%
Sanitary condition of premises	66%	68%	61%	48%
House.....	72%	68%	72%	66%
Cellar.....	31%	11%	8%	40%
Ventilation.....	60%	14%	60%	89%
Water Supply.....	72%	15%	29%	16%
Sewage Disposal.....	43%	32%	17%	3.9%
Barnyard, etc.....	56%	55%	39%	62%
Disposal of manure.....	61%	22%	11%	1%
Health.....	77%	29%	81%	96%
Average score for county.....	53%	54%	43%	52%

*Blackford County.*

No. Houses surveyed, 1374.

	No. Scor. Under 25%	No. Scor. 25-50%	No. Scor. 50-74%	No. Scor. over 75%
Site.....	2	1	905	466
Sanitary condition of premises	2	75	925	372
House.....	5	16	754	599
Cellar.....	916		71	387
Ventilation.....	476		139	759
Water supply.....	240	3	75	1056
Sewage disposal.....	31	635	671	37
Barn, barnyard, etc.....	21	470	704	179
Manure.....	88	734	522	30
Health.....	268	4	10*	1092
Average for each farm.....	12	244	912	206
Highest score, 99.				
Lowest score, 10.				

*Ohio County.*

No. houses surveyed, 441.

	No. Scor. under 25%	No. Scor. 25-50%	No. Scor. 50-74%	No. Scor. over 75%
Site.....		3	255	183
Sanitary condition of premises	2	13	253	173
House.....		7	229	205
Cellar.....	218	4	59	160
Ventilation.....	86		66	289
Water Supply.....	274	14	100	53
Sewage disposal.....	160	33	176	72
Barn, barnyard, etc.....	22	42	195	182
Disposal of manure.....	234	23	92	92
Health.....	56		4	381
Average for each farm.....	3	125	247	66
Lowest score, 19%.				
Highest score, 97%.				



*Scott County.*

No. houses surveyed, 945.

	No. Scor. under 25%	No. Scor. 25-50%	No. Scor. 50-74%	No. Scor. over 75%
Site.....	5	4	334	602
Sanitary condition of premises	31	32	617	265
House.....	24	14	451	456
Cellar.....	822	8	44	71
Ventilation.....	254	35	206	450
Water supply.....	816	7	60	62
Sewage disposal.....	598	238	88	21
Barn, barnyard, etc.....	276	182	358	129
Disposal of manure.....	659	199	53	34
Health.....	182	4	26	733
Total for each farm.....	51	597	274	23

Lowest score, 10%.

Highest score, 100%.

*Union County.*

No. houses surveyed, 908.

	No. Scor. Under 25%	No. Scor. 25-50%	No. Scor. 50-74%	No. Scor. over 75%
Site.....	10	120	102	676
Sanitary condition of premises	131	511	173	93
House.....	14	263	377	254
Cellar.....	510	206	72	120
Ventilation.....	145	131	6	626
Water supply.....	625	208	3	72
Sewage disposal.....	548	121	157	82
Barn, barnyard, etc.....	405	154	292	57
Disposal of manure.....	874	25	1	8
Health.....	27	36	10	835
Total score for each farm.....	20	694	173	21

Highest score, 90%.

Lowest score, 5%.



REPORT  
OF  
EPIDEMIOLOGIST

APRIL 1ST TO DECEMBER 1ST, 1916

H. H. MITCHELL, M.D.  
Epidemiologist.



## REPORT OF EPIDEMIOLOGIST.

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The work of the epidemiologist during the first six months has been varied. Most of the time he has devoted to field work in order to attain some knowledge of the state and its problems. He has done work in the bacteriological and rabies laboratories during the absence of Drs. Shimer, Schweitzer, and Anderson. He has made surveys at Lake Wawasee, Bass Lake, Sylvan Lake and Shelbyville. He has visited health officers in various parts of the state and rendered reports on the kind and extent of public health work done. For this purpose a questionnaire was prepared. Nine days in August were devote to work on a county survey of the feeble-minded, epileptic, and insane in Huntington county under the direction of the Board of State Charities and the Governor's Committee. Epidemics were investigated at Muncie, Jasper, Huntingburg, Wawasee, Newburgh, Yankeetown and vicinity, Evansville, Mackey, Sommerville, Winamac, Marion County Orphan's Home and Bluffton. An abstract of the reports of the epidemics follows. Educational exhibits were prepared and conducted by the epidemiologist at Muncie, Shelbyville and Indianapolis.

Beginning with October a start has been made upon a "follow up system" for the state supervision of epidemics of communicable diseases. A letter was sent to 770 physicians in communities where typhoid was prevalent during August or September. This letter was for the purpose of calling the attention of the physicians to the precautions necessary to prevent the spread of typhoid. They were urged to instruct their families in regard to these precautions and their responsibility to the public was emphasized. Considerable publicity was given to this letter by the press throughout the state.

All press reports regarding communicable diseases, obtained through the Clipping Service, are followed up by a suitable letter of advice to the health officer as to prevention and control of an outbreak of the diseases in question, with an offer of assistance from the State Board of Health. Circulars for popular education in the prevention of the disease are mailed to the health officer; and he is asked to place such literature in the home of every patient, and to urge the school teachers to instruct the children in the methods of prevention of the disease as advised in the

circular. When the disease occurs among school children, a letter is also sent to the school superintendent calling his attention to the Sanitary School House Law, Acts 1915, Section 2, which requires medical inspection of school children upon the outbreak of any contagious or infectious disease.

Each positive report on diphtheria cultures sent to our Bacteriological Laboratory from a child of school age during the school months is followed up by a letter to the health officer calling his attention to our epidemic outfits and the need for control of diphtheria in schools and other institutions by the culture method. All positive Widal's have been followed up with a request to the physician for epidemiological data with a questionnaire for the same. This "follow up system" by the laboratory for positive Widal's has been carried out for over a year, while this plan for positive diphtheria cultures has been used since the opening of schools in September last. It is now being supplemented by further follow up letters from the epidemiologist with circulars for popular education.

The following are a few of the form letters that have been prepared for use in this "follow up system". These letters are varied according to the circumstances of the outbreak or are supplemented by other letters.

**Form Letter KL-No. 1.**

To The Health Officer.

Dear Doctor:

We are informed that Dr. . . . . is caring for a case of diphtheria. We call your attention to this to see that the case is reported and also to urge upon you the importance of early and prompt measures to prevent further spread of the disease. To this end we are mailing you under separate cover a few samples of our circular on diphtheria, which we hope you will put into the homes of every patient who has the disease in order to instruct in the means necessary for the prevention of a further spread of the disease.

We shall be glad to send as many more copies of this circular as you can use if you will kindly state the number needed.

Very truly yours,

**Form Letter KL-No. III.**

To The Health Officer.

Dear Doctor:

We note by press reports that there has been an outbreak of diphtheria in your community. Have any cases occurred among the school children? If so we want to call your attention to our epidemic outfits for use in taking cultures when this disease breaks out in the schools or other institutions. If all persons exposed are cultured at the time of the occurrence of the first case, those carrying diphtheria bacilli in their throats or noses can be detected

and thus the further spread of the disease can be prevented. This culture method of controlling diphtheria in schools has been very effective in those parts of the country where it has been given a thorough trial with the result that the closing of schools on account of diphtheria epidemics has been entirely done away with.

It is the duty of the school authorities to have medical school inspection whenever diphtheria, scarlatina or other infectious or contagious diseases break out in school, and it is the duty of the health officer to have this law enforced.

We are mailing under separate cover a few copies of our circular on diphtheria which we urge you to give to the families of those concerned for their guidance in preventing the further spread of the disease and also to the teachers in order that they may teach the children at this time the facts they should know to prevent the spread of contagious diseases. We should be glad to furnish, upon request, as many other copies of this circular as you can use.

If assistance is needed for the control of this infection or the investigation of its source we shall be glad to await your orders.

Very truly yours,

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Form Letter KL-IV.

To The School Superintendent.

Dear Sir:

We note by press reports that the schools of.....have been closed on account of diphtheria. This is a most lamentable condition. We know you appreciate the financial loss of idle teachers as well as the loss to the students. The State Board of Health considers such measures very seldom, if ever warranted. An efficient plan of medical inspection in your schools would practically entirely prevent the appearance of epidemics; and so we urge you to establish such a system. It has been proved that it will save its cost as a health insurance measure alone, to say nothing of the humanitarian aspect.

The State Law insists that the school authorities shall provide medical inspection in the schools at the time of an epidemic. See Acts 1915, The Sanitary School House Law, Sec. 2. How much better it would be to have a medical inspector who would prevent an epidemic. It might be well to take up this matter with your local health officer and township trustee.

Very truly yours,

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Form Scarletina-No. I.

To The Health Officer.

Dear Doctor:

We note by press reports that there has been an outbreak of scarlet fever in..... Has any cases occurred among the school children? If so we want to call your attention to the State Law (Red Book page 121) requiring the school authorities to have medical inspection of school children whenever contagious or infectious diseases break out in any school, for it will probably become your duty to see that this law is enforced. Of course, this is a very efficient method of controlling the disease, for by this method, upon the appearance of the first prodromal symptoms, the infected child

can be isolated and thus prevent the exposure of all the other children. In this way also many mild or otherwise unrecognized cases can be detected and isolated. Very good results have come where every case of sore throat has been isolated as a suspected scarlet fever patient.

We are mailing under separate cover a few copies of our circular on scarlet fever which we urge you to give to the families of those concerned for their guidance in preventing the further spread of the disease. We urge also that you present this circular to the teachers in order that they may teach the children at this time the facts they should know to prevent the spread of contagious diseases. We should be glad to furnish, upon request, as many copies of this circular as you can use.

If assistance is needed for the control of this infection or the investigation of its source, we shall be glad to await your orders.

Very truly yours,

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Form Scarlatina III.

To The School Superintendent.

Dear Sir:

We are informed that there has been an outbreak of scarlet fever in your schools. Aware that you realize the serious interference with school work resulting from an epidemic of communicable disease among the school children we are taking the liberty to call your attention to the State Law which is intended to guard against such trouble. This law, under the Acts 1915, The Sanitary School House Law, Sec. 2, makes it the duty of the school authorities to have medical inspection of the pupils whenever any contagious or infectious diseases break out. Your appreciation of the severe financial loss of idle teachers as well as the loss to the students resulting from a closing of the schools at the time of an epidemic will certainly make such preventive measures appeal to your judgment. Efficient medical inspection will practically prevent entirely the appearance of epidemics in the school room. In those places where the plan has been tried out it has proved that the cost can be saved as a health insurance measure alone, to say nothing of the humanitarian aspect.

This letter especially appeals to you to fulfill your duty to this law which specifically insists that the school authorities provide medical inspection at the outbreak of any contagious or infectious disease. We ask you to take up this matter with the proper school authorities in order that the law may be carried out.

Very truly yours,

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Form Typhoid No. I.

To The Health Officer.

Dear Doctor:

We note by press reports that the daughter of....., residing.....has typhoid fever. Has the source of the infection been determined?



We are forwarding under separate cover several copies of our typhoid fever circular which we urge you to give to the families concerned for their guidance in the prevention of the further spread of the infection. Other copies of this circular can be obtained from this office upon request.

If assistance is needed for the control of this infection or the investigation of its source, we shall be glad to await your orders.

Very truly yours,

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Already the effectiveness of this follow up system has been demonstrated. A few cases of typhoid were noted in press reports from Bluffton papers. Form letter Typhoid No. I was immediately sent to the health officer at Bluffton. No reply was obtained. A second letter was sent, but upon learning the extent of the epidemic from another source, a visit was made to Bluffton followed by a thorough investigation and the location of the source of the trouble as described in the abstract of epidemic investigations.

At the present time with only monthly reports of communicable diseases, our complete dependence upon the Press Clipping Service very greatly limits the usefulness of the epidemiologist. By this method any knowledge of an epidemic usually reaches us after the damage has been done, unless the health officer sends a special call to this department for help. Efficiency in the control of epidemics demands early knowledge of prevalence and prompt action. A fire department that never received an alarm until the fire had half burned out would be ridiculous, so without prompt notification of the prevalence of communicable diseases, an epidemiological department can only investigate epidemics after they have passed. Daily reports from the health officer are essential for any system of efficient state control of communicable diseases.

With the outbreak of infantile paralysis threatening from the East, the prevalence of this disease in Indiana has been closely followed. All press reports of cases or suspected cases have been followed up by letter and a case report blank. This follow up system is explained in detail in the report entitled *Poliomyelitis*.

#### ABSTRACT OF EPIDEMIC INVESTIGATIONS.

*Muncie*.—Investigation of an epidemic of skin affection among the employees of the Warner Gear Company at Muncie, on May 15, 1916, showed Pyosis to be generally distributed among

the gear cutters. The oil used for cutting gears was used repeatedly. This oil, upon laboratory examination, showed staphylococciaurei. The oil had undoubtedly become infected by the men at the machines and the constant contact with this infected oil on the skin had produced the pyosis. A non-irritating, miscible coal tar disinfectant for use in this oil was recommended with a relief from the trouble.

*Jasper and Huntingburg.*—A striking epidemic of paratyphoid infection was investigated on May 20 in Jasper and Huntingburg. Fifty-eight (58) persons became acutely ill on May 13 or 14. All had eaten head cheese which was made in Huntingburg. Bacteriological examination showed several samples of this head cheese to be infected with para-typhoid bacilli.

*Wawasee.*—Septic sore throat was prevalent during June and July in a summer hotel at Lake Wawasee. Investigation on July 23, showed the epidemic to be due to contacts. The following recommendations were made with the result that the epidemic subsided.

1. The discontinuance of the common drinking cup.
2. All patients isolated in their rooms until the inflammation in their throats had subsided.
3. All cuspidors, bed linen, and towels from the rooms treated with formalin.
4. All silverware from the dining room and soda fountain boiled after using.
5. Glassware and other dishes washed in hot soap and water and scalded before wiping.
6. The handling of ice for the water pitchers forbidden.

*Newburg.*—An outbreak of typhoid fever at Newburg, Warrick county was investigated an August 10th. A case of typhoid was found upon a dairy farm supplying milk in Newburgh. The sale of this milk was ordered discontinued until the recovery or removal of the patient.

On the same day an outbreak of typhoid fever was investigated in a rural district, northeast of Newburg. Seven cases with three deaths were traced to one person, a probable carrier, who was recovering from a cholecystitis operation at the time of the investigation.

*Mackey.*—Nine cases of typhoid fever were investigated on August 24th at Mackey, Gibson county. Five of these cases were widely distributed upon farms, while four in the village of Mackey had all drunk water from one open dug well. Examina-

tion showed that this well was badly polluted. The specific source of the *Bacillus Typhosis* was not determined. The disease was epidemic in Evansville at the time of this outbreak, and many cases had occurred throughout that section of the state, so it is not to be wondered at, that the infection should reach this community where so many conditions invite typhoid. Practically all the wells in this section are open dug wells and most of them are dug in lime stone. Privies are open and located without regard to danger of well pollution.

*Evansville.*—An epidemic of about one hundred seventy-five (175) cases with seventeen (17) deaths occurred in Evansville during July, August, and September. Eleven days were devoted to the study of this epidemic. Careful investigation of water, milk, ice cream, and green vegetables failed to reveal any clue as to the source of the infection, except for one possibility through ice cream that could not be eliminated during the time allowed on this study. A source of infection may have been present at some one of the thousand or more dairies supplying milk to the large wholesale ice cream manufacturers, and if there had been any slip in the efficiency of the pasteurization, the disease might have been spread through the ice cream. The same milk was not used for retailing as for ice cream.

Any possible infection from such a source would be shut out by efficient pasteurization, and this was checked up by bacteriological counts. Through this method the suspicion fell on one company, who showed numerous samples of pasteurized milk, cream and ice cream with high bacterial counts. Later counts, after the manager's attention had been called to their poor showing, gave results that compared favorably with other pasteurized milk.

Although the bacteriological counts placed a suspicion upon this company, no accusation was made, inasmuch as the later tests showed that the fault had been remedied and the evidence was insufficient.

#### PROBABLE SOURCES OF TYPHOID FOUND. (*Evansville.*)

Two farmers located outside the city who had sold butter in the Evansville market while a case of typhoid fever existed on their farms.

Two cases of typhoid were found in bakeries where other members of the families handled unwrapped bread and cakes. Both of these cases were hospitalized. Another case was located

in a boarding house where the same dishes used in the sickroom were mixed with those for the boarders without sterilization. This case was hospitalized.

A number of the cases probably 20 to 25% were found to be among bathers in the various swimming pools throughout the city. These pools were evidently a possible source of typhoid infection. Skin infections had been epidemic among the bathers nearly all summer. So there is evidence of other infections carried through this medium. With typhoid so largely found throughout the city, it seemed very likely that the water might become polluted by a carrier, by some person in the early stages of typhoid, or by a convalescent. Because of this danger arrangements were made with the sanitary inspector to dose the water daily with ten to twenty pounds per million gallons of calcium hypo-chlorite, and to have the water changed more frequently.

The return of the milk bottles from the typhoid homes to the milk dealers and the use of such infected milk bottles was discontinued after some delay. This delay, however, undoubtedly allowed many bottles from homes where there was typhoid to be distributed about the city, and the possibility for spread of infection from such a source is considerable. Such a delay is another example of the inefficiency of a busy practitioner of medicine as health official. In this case the milk inspector found it impossible to notify the milk dealers and dairymen, because of the demands made upon him by his patients.

Over 70% of the homes where typhoid was reported had open, unscreened privy vaults and no toilet connection with the sewers. With such disposal of fecal material, we would expect typhoid fever. The fly, probably, had a large share in the spread of the disease under these conditions. Flies were very numerous in Evansville this summer because of numerous manure piles, very poor disposal of garbage, and the extremely warm weather.

Numerous contact cases were reported by the visiting nurse, although no definite figures were obtained. The actual possibility for contact infection and transmission by flies was realized after a personal canvass of seventeen cases showed that the *physician had made no mention to the family of the communicability of typhoid fever in any case, and no sterilization of the discharges was carried on* until the city Visiting Nurse, Miss Byrne, called and explained how and why. Such negligence on the part of physicians is none short of criminal, although it is probably a result of wrong medical teaching and lack of study following graduation rather

than intention on the part of the physicians. Typhoid has been considered an infectious but not contagious disease with the result that great numbers in the medical profession have made a distinction that was not understood, and the disease has not been considered communicable. Rosenau says, "Typhoid fever, in view of all the facts, must now be regarded as a contagious disease. We will never have an end of it, until it is so regarded and treated accordingly."

#### RECOMMENDATIONS. (*Evansville.*)

1. Further analysis of wells and cisterns with the condemnation of those showing pollution with the later condemnation of all wells where connection can be made with the city water supply.
2. Passing of an ordinance requiring sewer connections wherever possible, and sanitary privies outside the sewered area.
3. Notification of all milk dealers of the location of each case of typhoid fever on their route with instructions that no milk bottles shall be returned until the patient has recovered.
4. Placarding of each case of typhoid fever.
5. Passing of a milk pasteurization ordinance.
6. Daily or at least frequent bacteriological checks upon the various pasteurization plants.
7. Enforcement of the law requiring ice cream and butter to be made from pasteurized milk and cream.
8. Free anti-typhoid vaccination at city vaccination stations.
9. The closing of the swimming pools or daily dosing with calcium hypo-chlorite and frequent change of the water.
10. Hospitalization of all cases of typhoid not easily cared for so as to prevent "contacts."
11. The visiting of each case by a public health nurse with careful instructions on how to prevent the spread of the disease.
12. Better garbage collection with a second incinerator at the opposite side of the city.
13. Stricter enforcement of nuisance laws to prevent fly breeding.
14. Daily press reports on the number of cases reported, the work of the health department, and detailed information for the education of the public in personal and community prophylaxis against typhoid.

It is believed that the following measures were influential in bringing down the number of cases from one hundred thirty-three (133) reported in August to twenty-four (24) in September.

1. The visiting of each case by Miss Byrne, the city nurse.
2. The publicity and education given by the local press.
3. The hospitalization of a few cases especially dangerous.
4. Anti-typhoid vaccination. Twelve stations for free vaccination were distributed over the city in drug stores.
5. The stopping of all milk bottles returning from typhoid homes.
6. Daily dosing of the swimming pools with "hypo."
7. Improvement of the pasteurization in one milk company.
8. Disinfection and screening of numerous privy vaults throughout the city.

With the use of a safe water supply like the Evansville City Water, such immunity as is very probably acquired by the continued use of polluted water disappears. The Evansville epidemic showed a high percentage of cases among children who have probably always used the filtered and "hypo" treated water, while the adults would show greater resistance because of the use of the raw river water before the installation of the present plant.

Evansville is a city with poor sanitation except for the city water supply. With the development of sanitary disposal of human excreta the typhoid rate will certainly fall, but this will not entirely rid the city of typhoid, even if it is combined with pasteurization of all milk products. The mild unrecognized case, the case with enteritis or malarial symptoms, then assumes the importance that unrecognized infections do in the spread of scarlatina and diphtheria. So with the improvement of sanitation the problems for the epidemiologist of finding a source of infection become the more complicated, and the disease may appear more contagious. Our protection then must be anti-typhoid vaccination.

*Winamac.*—Eight cases of typhoid fever with two deaths occurred during July and August at Winamac with several other cases of unexplained diarrhea and fever that were not reported as typhoid and were not given the Widal test. This outbreak was investigated on August 25th and the following letter was sent to the health officer and the Citizens' Welfare Committee:

August 28, 1916.

Members of the Winamac Welfare Committee:  
Gentlemen:

A study of the recent outbreak of typhoid fever at Winamac brought to light several remediable conditions which invite typhoid in your city. Chief among these is the sewer of Mr. K emptying into the Tippecanoe River above the intake of the pumping station. Where this raw river water is piped into houses, it will be found that many persons use it for brushing their teeth, washing vegetables, and washing dishes and milk bottles, and thus expose themselves to infection from polluted water. We found that raw river water was used to wash all the glasses at the soda fountain in the S Drug Store. It is likely that a similar use is made of this water in other business places.

No bathing should be allowed above the intake of the pumping station, for there is always grave danger of bathers polluting such water with typhoid bacilli. Swimming below the outlet of the sewer is dangerous and should be prohibited. Swimmers practically always take some water into the mouth and typhoid fever may be contracted in this way. It is unfortunate if the city has not arranged for a clean part of the river for swimming below the intake of the water supply and above the outlet of the sewers.

All of the cases of typhoid were found to be users of milk from the H dairy at the time the disease was contracted. This fact alone places strong suspicion upon this dairy as the source of infection. A careful investigation was made of this dairy, but no conditions could be found at that time which could be definitely pointed to as the cause of the epidemic. However, conditions were not proper for the production of a high grade milk, although the barn was found clean. An open privy vault and a well without a tight protecting curb invited the spread of typhoid, as well as the inefficient protection against flies. We recommend that your city require all milk sold within its limits to be pasteurized.

Blood tests must be made upon Mr. B, the dairyman in charge, and his wife, and sons, who assist in the care of the milk. Also an analysis must be made of the water from the well in the milk house, which is used for washing the cans and bottles. Dr. Thompson has been sent the necessary material for these tests, and we are asking that they be sent promptly to the State Laboratory. Meantime we advise all citizens to either boil or pasteurize their milk. By pasteurization; we mean heating the milk to 145 degrees Fahrenheit and holding at that temperature for 30 minutes.

We urge that prompt measures be taken by the health officer and city council to stop all swimming in the Tippecanoe River above the power house and below the sewer outlets; that the sewer of Mr. K's above the power house be closed; and the use of raw river water for washing dishes, cleaning vegetables, brushing the teeth be discontinued by every person in Winamac; and only such use made of the raw river water as cannot pollute food or any articles which may come in contact with the mouth. As a further protection against any careless handling of this water, we should advise treatment of the water with chlorine gas or hypochlorite of calcium. This river water could be made safe for drinking purposes by filtration and chemical treatment.

To prevent the further spread of typhoid in your vicinity, it will be necessary that every case of typhoid be isolated, protected against flies, and all the bowel and urinary discharges thoroughly disinfected before emptying into the sewer. We are sending pamphlets upon the prevention of Typhoid Fever to your health officer, Dr. Thompson, and asking him to distribute same to each family where there are cases or suspected cases of typhoid fever, in order that these families may understand what measures are necessary to prevent the further spread of this disease to their neighbors.

We further recommend that the use of the open privy vault be discontinued as rapidly as possible by local ordinance and sewer connections be made for each house in the city. Most of the wells in the city are in grave danger of pollution from these vaults through the earth. Frequent analysis of the water from these wells should be made. The sample sent to our water laboratory for analysis last week was delayed because no data as to the source was sent with the specimen.

We trust that the gentlemen of the City Council will cooperate with the health officer, and insist that the above recommendations be carried out, especially the closing of the present K sewer, the prohibition of swimming as described, the further investigation of the H dairy by blood tests and well water analysis, and proper control of the present cases of typhoid to prevent further spread by contact and flies.

Very truly yours,  
H. H. MITCHELL,  
Epidemiologist.

At the request of one of the trustees of the Marion County Orphan's Home an outbreak of two cases of scarlet fever and three cases of diphtheria were investigated on November 9th with the help of Dr. Hoskins, the visiting physician. Dr. Hoskins' prompt measures had prevented any further cases of scarlatina after October 17th, so the danger from this outbreak of scarlatina was passed. Cultures from children in the infants' ward revealed seven cases of nasal diphtheria. This ward had already been isolated by Dr. Hoskins.

At Bluffton during the week of November 11th to 17th a typhoid fever epidemic was investigated. Only one physician had reported cases to the health officer, but one hundred ten (110) cases were located in Bluffton and the surrounding territory. The only common food or drink used by all these patients was water from the Bluffton Water Works. This water showed pollution during August and September and again in November following this investigation. The supply comes from deep wells but is probably polluted in the reservoir before running into the city mains. This reservoir is a large unsealed dug well, and cut out of the lime stone rock. Inspection revealed surface pollution seeping into this reservoir through the crevices in the



limestone. The lime stone lies not more than ten to fifteen feet below the surface and pollution from the surrounding privy vaults could easily reach the crevices of the rock and thus find its way into the reservoir.

#### RECOMMENDATIONS.

The following needs are suggested for the control and prevention of epidemics of communicable diseases:

1. That the legislature enact a law requiring daily reports of communicable diseases including tuberculosis to the State Board of Health, with sufficient extra appropriation to provide for such clerical assistance as may be necessary to handle these reports so that knowledge of the occurrence of epidemics may not be delayed.
- 2. That the legislature enact a law requiring immediate reporting by telephone or telegraph cases of communicable disease occurring on dairy farms or any place where raw dairy products are handled. This report must include name, address, whether or not isolation is complete, and, if permission to sell the products has been granted, the telegram should state where they are distributed.
3. In as much as the early diagnosis of communicable diseases is essential to the prevention of epidemics, the appropriations for the State Board of Health should be made with an understanding of the need of the employment of expert diagnosticians who may respond to the call of the health officers for assistance in diagnosing smallpox, acute poliomyelitis, scarlet fever and trachoma.



REPORT  
ON  
WELFARE WORK  
INCLUDING  
CHILD WELFARE

ADA E. SCHWEITZER, M.D.



## SCHEDULE OF WELFARE WORK FOR 1915-1916.

ADA E. SCHWEITZER, M. D.

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*1915.*

- Oct. 6. Indianapolis, Judged Milk Station Babies, Baby Contest.
- Nov. 13. Orleans, Welfare Congress, evening, Child Welfare Talk, Illus.
- Nov. 14. Orleans, Welfare Congress, p. m., Talk to Women, Sex Problems.
- Nov. 15. Orleans, Welfare Congress, a. m., To High School Girls, Personal Hygiene.
- Nov. 17. Elwood, Women's Club, Evening, Social Hygiene.

*1916.*

- Jan. 3. Indianapolis Jewish Federation, p. m., Heritage of Child.
- Jan. 23. Lebanon, Boone County, Welfare Congress, Women, Social Hygiene.
- Feb. 2. Butler, I. U. Extension, Mothers, Heritage of the Child.
- Feb. 11. Indianapolis, Suffrage Public Health Day, Claypool Hotel.
- Feb. 16. State Board of Health Activities in Child Welfare. LaGrange, I. U. Extension, Community Welfare. Noon, Luncheon, Value of Play.  
1:00 p. m., High School, Personal Hygiene, and Efficiency Factor.  
3:00 p. m., Presbyterian Church, General, Sanitation in the Home.
- Feb. 17. Shelbyville, High School Girls, Personal Hygiene.
- March 5. Frankfort, Welfare Congress, p. m., Women, Social Hygiene.
- March 7. Winchester, "Better Babies", Women's Clubs, Mother's Mass Meeting. Child Hygiene.
- March 7. Union City, Ticknor Club, Mothers, Prenatal, and Infant Care.
- March 13. Brookville, "Better Babies", p. m., Mothers. Child Care.  
Evening, General Audience, Heritage of the Child.
- March 14. Laurel, "Better Babies", Mother's Club, Care of Child.

1916.

- March 16. Lafayette, Directed Better Babies Contest.
  - March 17. Lafayette, a. m., Directed Better Babies Contest.
  - March 17. Attica, p. m., Women's Clubs, Child Welfare Program. Child Care.
  - April 2. Plainfield, Welfare Congress, Women, Social Hygiene.
  - April 24. Muncie, Child Welfare Week, p. m., Groups of Pupils, Hygiene.  
Evening, M. E. Church, Illustrated General, The Mother and Child.
  - April 27. Muncie, p. m., Mother's Day. Three Clubs. Child Care.
  - June 30. Richmond, Local Physicians, Laboratory Equipment, and Standards.
  - July 2. Columbus, Special Woman's Meeting, Responsibility of Girlhood.
  - July 8. Winona Lake, Assembly, Baby Welfare Day, a. m., Baby Contest; p. m., Mother's Meeting. Auditorium, Health Programs of Childhood.
  - Aug. 10. Plymouth, Centennial Week, Baby Welfare Day, All Day; Directed Examination of Children; a. m., Talk, Infections of Children; p. m., Medical School Inspect.
  - May 11. Huntingburg, Third District Medical Society Paper, The Character of the Specimen Sent. Reasons for Rules.
- Series of Talks to Nurses. Bacteriology and Hygiene.  
 March 3 to April 21, Neuronhurst. Two evenings each week.  
 April 11 to May 23, St. Vincent's Hospital. One each Week.  
 Respectfully submitted.

#### REPORT OF WELFARE WORK. BY SUBJECTS.

ADA E. SCHWEITZER, M. D.

Community Institutes were conducted by the extension department of Indiana University in cooperation with the State Board of Health and the Federal Child's Bureau with the purpose of establishing in each community a definite institution for the consideration of general welfare interests and problems. The child health conferences under the supervision of Doctor Sherbon of the Child's Bureau were of especial value. The writer

gave talks at Butler and LaGrange on Child Welfare and Home Sanitation.

Social Welfare Conferences were held usually as county health conferences under the auspices of the State Conference of Charities Committee on Local Charities with the cooperation of the State Board of Health. The subject of Social Hygiene and Sex Education was presented to mass meetings of women at the Clinton County conference at Frankfort, to the Boone county conference at Lebanon and to the Hendricks County conference at Plainfield. At the District conference at Orleans a general talk on Child Welfare illustrated by lantern slides was given to a mixed audience on Saturday evening, on Habit Formation to the Presbyterian Sunday school, on Sex Problems to a mass meeting of women and girls on Sunday afternoon and on Personal Hygiene to high school girls on Monday.

The address on Social Hygiene at Columbus was one of a series of talks to women and girls arranged by Reverend Book, pastor of the Presbyterian Church, where the meeting was held. The Social Hygiene discussion at Elwood was under the auspices of the women's clubs. At Shelbyville talks on Sex Hygiene were requested by the high school superintendent. The talk to girls was followed by questions which showed an appreciation of their responsibility in this important matter.

#### CHILD WELFARE CONFERENCES.

The general observance of "Better Baby Week" throughout Indiana is destined to accomplish much good. Already child clinics, local medical and dental inspection in schools, together with the follow up work of the visiting nurse have been established in a number of communities. The opportunities for service open to a public health nurse who has the support of a progressive community are well shown by the following abstract of an article appearing in the Public Health Nursing column of The Indianapolis Star, issue of November 12, 1916. Miss Alberta Ferguson, R. N., was employed in Winchester, Indiana, in June, 1916, by the Federation of Clubs and the Business Men of Winchester, both contributing to her salary. "Arriving in June at the opening of the playground season she first launched that work. Through the Board of Health she obtained apparatus for the playground and through the business men a galvanized tank for the bath. In the summer from four to five o'clock in

the afternoon 200 shower baths were given to the children. Miss Ferguson next procured the birth registration records of Winchester and visited the homes of the new babies, instructing mothers as to correct feeding, clothing etc. She found insanitary alleys and yards and was made sanitary inspector with police power. She found that a house occupied by a chronic tuberculous case was vacated and re-rented without proper disinfection. Through her the authorities were awakened to the advisability of obeying health laws, and property owners are complying with the law. A new school building has been erected in Winchester. The four room building, thus vacated has been turned over to Miss Ferguson for clinics and a mothers' club, before which she will talk on Health and Household economics. Adjoining this building is the playground mentioned. School nursing and prenatal work has also been done by Miss Ferguson and she hopes soon to develop rural nursing in the county." Many towns, even those more populous than Winchester might feel that there would not be sufficient work to warrant the employment of a full time nurse, and yet this young woman has found many ways to help. It may be pertinent to remark that in any community these things are likely to be overlooked unless there is some one whose business it is to discover and to remedy them.

The "Better Baby Conferences" which have been held show urgent need for the consideration of the child's health and the means by which it may be improved. The questions asked by mothers concerning food, baths, sleep, play, eliminations, infectious diseases, habit formation, and sex enlightenment show that mothers are anxious to give their children the best possible advantages in health and training. In the meetings held the work was planned under the direction of women's clubs or by individuals of ability interested in the work.

At the request of the Jewish Federation a talk on The Heritage of the Child was given at the Temple in Indianapolis. The State Board of Health Activities in Child Welfare was presented to the local Suffrage Organization at the Claypool Hotel on their Health Day. Child welfare, heredity, environment, training and care were presented during better baby week at mothers' mass meetings at Winchester, Union City, Brookville, Laurel, Lafayette, Attica, and later at Muncie, Winona Lake Assembly, and Plymouth.

A detailed report of the conferences held at Lafayette, Muncie, Winona Lake Assembly, and Plymouth will indicate possibilities in child welfare work.



At Lafayette a three day contest was held. Eligibility was limited to children from six months to two years of age, and was based on actual birth registration the latter calling the attention of parents to a very important matter. A program was provided which included talks on subjects of practical interest to every mother and demonstrations in baby care and feeding at different ages. Most excellent music was furnished for all the sessions. The registration cards, the stationery, the programs, and the newspaper publicity work are all worthy of commendation.

On the front of the folded registration card was the following:

#### ONLY A BABY.

Something to live for came to the place  
 Something to die for maybe;  
 Something to give even sorrow a grace—  
 And yet it was only a baby.  
 Cooing and laughter, and gurgles and cries,  
 Dimples for tenderest kisses:  
 Chaos of hopes and rapture and sighs,  
 Chaos of fears and blisses.  
 Last year like all years, the rose and the thorn;  
 This year a wilderness maybe;  
 But heaven stooped under the roof on the morn,  
 That it brought there only a BABY.

The reverse of the card contained the announcement and the registration blanks given below:

"Registering day of the Lafayette Baby Contest are March 10th, and 11th, 1916, at the Vocational School, corner 6th and Columbia Streets.

Sign and bring the card with you properly filled out, and register your baby on above dates.

#### LAFAYETTE BETTER BABY CONTEST.

Name.....Address.....  
 Age in months.....Sex.....  
 Number of child of mother.....  
 Weight at birth.....Weight now.....Height.....  
 Bread fed?.....Mixed fed?.....Bottle fed?.....  
 Kind of food.....  
 Number of feedings in 24 hours.....

Amount at each feeding.....  
 Does baby sleep alone?.....  
 Are windows open?.....How many?.....  
 Has birth been legally registered?.....Where?.....  
 Signed.....Mother."

One thousand of these cards were sent out by the committee having charge of the contest to the mothers of babies between the ages of six and twenty-four months whose names were found registered in the city, county, and West Lafayette birth records. Inquiry by the mother of an eligible baby, who failed to receive a card revealed the fact that one birth had not been recorded, and this matter was attended to at once that this baby might be entered. There were 264 entries and several hundred mothers took part in the demonstrations and round table discussions.

Valuable prizes were offered for the highest scoring baby in each of three classes divided according to age; for the best twins and for the best colored children. The highest scoring children were re-scored in the elimination contest, the highest number of points being awarded to Irene Elizabeth Palmer who received in an average of the final scores 98 1-3 points out of a possible 100. In addition to her excellent physical condition, this baby at the age of eleven months and twenty-one days showed throughout the examination no sign of fear or irritation but displayed absolute confidence in those who conducted the examination. The child was the counterpart of her mother in physique, in beauty and in poise. Heredity and early training count. The fact that nearly all the children scored so high that the score for the elimination contest had to be raised to avoid having a larger number than could be re-scored in a given time, speaks volumes for the physical health, the mentality, and the good behaviour of the Lafayette babies, and likewise for the good health and wisdom of the parents.

General interest was shown in the lectures, a program of which follows and in the exhibits which were displayed throughout the contest. A feature of the latter was a collection of 101 books on baby topics loaned by the State Library Commission. There were also literature for distribution and posters from the State Board of Health. Model equipment for a nursery was shown, with everything pertaining to a baby's care including an infant lung motor.

The contest under the direction of Mrs. C. B. Kern was considered by local authorities to have been the best managed affair ever arranged at Lafayette. The interest aroused in child wel-

fare has resulted in a general uplift and plans are under consideration for a "Baby Week" at the next county fair. The records are kept in permanent file and a copy will be sent to the State Board of Health. The scoring was done under the direction of Dr. Ada E. Schweitzer and Dr. W. F. King.

### PROGRAM

BABY SUNDAY, MARCH 12, 1916

#### SCHOOL DAY

WEDNESDAY, MARCH 15

7:00 p. m. Exhibit Open, Third Floor.

8:00 p. m. Assembly Hall.

Lafayette High School Orchestra.

a. Overture..... "Bohemian Girl"

b. Overture..... "Bright and Gay"

Purdue Girls' Glee Club.

Lecture (Illustrated)—"Hygiene and Its Relation to the Growing Child."

Dr. J. N. Hurty, Sec'y State Board of Health.

#### FATHER'S DAY

THURSDAY, MARCH 16

9:00 a. m. Exhibit Open, Third Floor.

9:00-12:00. Baby Scoring, Room 310.

10:00 a. m. Room 314.

Solo..... Miss Irene Fuller

Round Table—"Pre-natal Influences,"

Miss Fannie Knecht, Sup't Home Hospital.

1:30 to 4 p. m. Baby Scoring.

2:30 p. m. Room 314.

#### MUSIC.

Demonstration—"Children's Clothes,"

Miss Mary L. Matthews, Prof. Home Economics, Purdue.

8:00 p. m. Assembly Hall.

Piano Solo—"Rondo Capriccioso"..... Mendelssohn

Miss Elsie Klotzenbucher.

Vocal Solo—"A Birthday"..... Woodams

"In the Dark, In the Dew"..... Combs

Miss Juanita McCabe.

Lecture—"Children's Books"

Miss Carrie E. Scott, State Library Commission.

Piano Solo—Waltz, Opus 3..... Wieniawski

Miss Klotzenbucher.

Vocal Solo—"Cuckoo"..... Lehman

Miss McCabe.

## BIRTH REGISTRATION DAY

FRIDAY, MARCH 17

9:00 a. m. Exhibit Open.  
 9:00 to 12:00. Baby Scoring, Room 310.  
 1000 a. m. Room 314.

## MUSIC.

Demonstration—"Preparation of Foods for the Child Up to  
 Two Years of Age,"

Mrs. Wm. H. H. Moore, R. N.

1:30 to 4 p. m. Baby Scoring, Room 310.  
 2:30 p. m. Room 314.

Solo.....Miss Carmen Williams  
 Demonstration—"Bathing the Baby,"

Miss Laura Partch, R. N.

8:00 p. m. Assembly Hall.

Violin Duet—"Barcarolle".....Offenbach

Misses Margaret and Mildred Williams.

Vocal Solo—"When Song is Sweet".....Sans Souci  
 "Rose of My Heart".....Lohr

Miss Edna Jakes.

Illustrated Lecture—"Saving the Babies,"

Dr. W. F. King, Asst. Sec'y State Board of Health.

## OUTING DAY

SATURDAY, MARCH 18

9:00 a. m. Exhibit Open.  
 9:00 to 12:00. Baby Scoring, Room 310.  
 10:00 a. m. Room 314.

Solo.....Miss Veva Deal  
 Demonstration—"Foods for the Child from Two to Six Years  
 of Age".....Mrs. A. G. Phillips

2:00 p. m. Assembly Hall.

Solo.....Miss Una Dell Berry  
 Lecture—"The Perfect Child".....Dr. Stanley Coulter

3:00 p. m. Final Baby Scoring.  
 Chorus of School Children.  
 Awarding of Prizes.

4:00 p. m. Automobile Baby Parade.

The following report was furnished by Mrs. C. B. Kern. Children who scored above ninety in the contest were re-scored in an elimination contest. Percentages of children scored are based in the number of children originally scored, and percentages of children re-scored are based on the number of children originally scored in that age class.

## NUMBER OF EXAMINATIONS.

Ages	No. scored	Percent	No. re-scored	Percent	Twins	Colored
6-12 mo.	71	52.6	52	73		
13-18 mo.	28	20.7	18	64		
19-24 mo.	27	20.0	27	100		
Not given.		6.7			6	3

Total, 135 Babies. Ninety-seven were re-scored. The small number entered in the twin and colored children classes made re-scoring in those classes unnecessary.

The number of breast fed children in the original number scored and in the number of children whose scores were high enough to win for them a place in the elimination contest has been tabulated. The higher percentages of breast fed babies show the importance of the natural method of feeding.

## FEEDING

Ages	No scored	Breast F.	Percent	Re-scored	Breast F.	Percent
6-12 mo.	71	50	70	52	46	88
13-18 mo.	28	17	61	18	15	83
19-24 mo.	27	20	74	27	20	74
Total.	126	87	69	97	81	84

The scores of the twins are grouped in order and the scores of the colored children are given singly, the highest first, while the scores of children whose ages are given are tabulated for comparison.

## Scores of the Twins:

First.	Second.	Third.
91 and 96	92 and 91	88 and 85.

## Colored Babies:

First.	Second.	Third.
96	83	72.

## SCORE OF PRIZE WINNERS IN ELIMINATION CONTEST.

Ages	First	Second	Third	Fourth
6-12 mo.	98 1-3	97 2-3	97 2-3	97 2-3
13-18 mo.	97 2-3	97 1-3	97	97
19-24 mo.	98	97 2-3	97 1-3	97

The following score card was used at Lafayette and at Winona Lake:

1. Head (shape, size, condition hair and scalp, fontanel).....
  2. Face (eyes, nose, mouth, features).....
  3. Chest (shape, size, glands of neck, ribs, scapulae, spine)...
  4. Abdomen (distention, hernia).....
  5. Limbs (symmetry, deformity, defects).....
  6. Skin (color, roughness, eruptions, naevus).....
  7. Teeth (number, regularity, condition, occlusion).....
  8. Nutrition (abnormally fat or thin, anemic).....
  9. Deportment (irritability, fear, crying, smiling).....
  10. Mental development (according to age).....
- (Score in each subdivision is 10. A perfect total, 100.)

The contest at Winona Lake Assembly was arranged for in so short a time that it was impossible to secure a large number of exhibits. Literature supplied by the State Board of Health, and pamphlets on Prenatal Care and on Infant Care from the Federal Child's Bureau were distributed to mothers. The forenoon was devoted to the scoring of children by the local physicians under the direction of Dr. Ada E. Schweitzer. In the afternoon a program of music and talks was given to an audience of mothers. Mrs. W. W. Reed of Warsaw spoke of Woman's Opportunity and Dr. Schweitzer of The Health of the Child.

Thirty eight babies were examined all of them scoring very high. As five of these were born outside the state they are not included in the tabulations. The score sheets were given to the mothers. The only available statistics have been compiled from the registration sheets, which were similar to the registration cards used at Lafayette.

#### CHILDREN SCORED.

Number and Percent, by Age and Sex.

Age.	No. Males.	Percent Males.	No. Females.	Percent Females.
1- 6 mo.	4	50	4	50
7-12 mo.	2	50	2	50
13-24 mo.	4	40	6	60
25-36 mo.	5	45	6	55
Total.	15	45.5	18	54.5

The fact that the children were almost uniformly well nourished may be attributed to the predominance of breast fed children.

Twenty-seven or eighty-two percent were breast fed, twelve or four percent were bottle fed and two or six percent were mixed fed. The latter was usually due to the fact that not enough milk was furnished by the mother.

The relative size of families is indicated in the following chart:

#### NUMBER OF CHILD OF MOTHER.

Priority.	Number	Percent.
First.....	14	42.4
Second.....	11	33.3
Third.....	6	18.3
Fourth.....	1	3.0
Not given.....	1	3.0
Total.....	32	100.0

Nearly all were given additional food suitable to age. All slept with from two to four windows open, one slept on a sleeping porch. Twenty-nine or eighty-eight percent slept alone, while only four or twelve percent slept with other persons. All births were reported registered but in two cases records were not found.

The child receiving the highest score was under one year of age as was the highest scoring child at Lafayette.

A follow up letter from Mrs. Geo. B. Killen, Chairman of the Committee of Arrangements gives the following interesting report:

Several children were permanently benefited as a result of advice given, one little girl was saved an operation, and also a little boy. Every one is praising Baby Welfare Day, and the Assembly managers insist on making it an annual affair.

At Muncie no contest was held. Clinics for children of different age groups were held each day. Children were brought in for examination and parents were advised concerning them. There were no limitations save that any with an infectious disease was excluded. No definite statistics as to results are at present available, though several children are known to have been greatly benefited by the discovery and eradication of abnormal or harmful conditions. The local physicians alternated in the work. Throughout the week most excellent programs consisting of music, talks by local physicians, and illustrated talks by persons from the State Department of Health and also practical demonstrations in child care were given. Talks were given to mothers' clubs and to school children on health topics. A large exhibit

on Child Welfare was arranged by the State Board of Health and daily demonstrations were given.

At Plymouth, Child Welfare Day was observed during Centennial Week. The object was to arouse interest in the good health of children not only in babyhood, but throughout school life, thus laying the foundation for a vigorous maturity.

A large corps of workers was provided. A playroom with modern equipment was arranged for the use of children while the parents were attending lectures and demonstrations, or viewing the exhibits. Young women were in charge. So many children were brought for examination that a part of the time six doctors, two dentists, a nurse, and three assistants were kept busy. General physical examination, ear, nose, and throat, and dental examinations were made. The dental blanks were supplied by Wm. Herriot and Son, and with the medical charts were given to the parents with whatever advice was indicated in each case. The contest feature was omitted but the condition of each child was noted on the blanks furnished by the Federal Child's Bureau. The revised history sheets furnished by the State Board of Health were used in compiling the statistical tables.

#### NUMBER OF CHILDREN EXAMINED.

Age by Months.	No. Males.	Percent Males.	No. Females.	Percent Females.
1- 6	2	67	1	33
7-12	8	57	6	43
13-24	6	35	11	65
25-36	7	63	4	47
37-48	4	47	7	63
49-60	2	67	1	33
61-120	16	43	21	57
120-up	3	25	9	75
	—	—	—	—
Total, all ages	54	45	65	55

Although one hundred and nineteen children were examined, only one hundred fourteen history sheets were filled out. Of the 114, ninety-one or seventy-seven percent were breast fed, ten or twelve percent were bottle fed and in thirteen cases or fifteen percent the feeding was not given.

Other food or table food was reported by ages as follows:

Six to twelve months, no food reported other than mother's milk. Thirteen to twenty-four months, cow's milk, whole or



modified, dextrin, maltose, condensed milk of various brands. light table food.

Twenty-five to thirty-six months, same as above adding malted milk, potato, egg, beef juice, fruit juice, rolled oats, cocoa, toast. bread and butter.

Thirty-seven to forty-eight months, same as above, to including all foods.

In the majority of cases bottle fed babies were given cow's milk whole or modified, pasteurized in some cases, and fruit juices. The mothers seemed to be well informed as to the proper food for given age and development. The term table food is however, indefinite and may recover a multitude of dietary sins.

The periods of breast feeding, when given varied from four weeks to twenty-one months as follows: Two babies, four weeks; one, seven weeks; three, two months; four, three months; three each, five and six months; two each, eight and nine months: one, ten months; three, eleven months; twelve, twelve months: one, thirteen months; eight, fourteen months; seven, fifteen months; two, sixteen; one, seventeen; seven, eighteen; and two twenty-one months. That the importance of fresh air for the child was appreciated is shown by the fact that ninety seven and three tenths percent sleep with at least one window open, two children having their beds on a sleeping porch. The low proportion of children who slept alone, forty three percent was due to the fact that the elder children were included, the latter often sleeping with other members of the family. However desirable it may be that children should sleep alone, in large families with limited means this is not always possible.

In the tabulation of the number of children in the family it will be noted that several families had more than four children.

#### NUMBER OF CHILD OF MOTHER.

Priority.	Number	Percent.
First.....	41	34.4
Second.....	30	26.
Third.....	18	15.0
Fourth.....	12	10.0
Fifth.....	3	2.5
Sixth.....	3	2.5
Eighth.....	2	1.6
Not given.....	10	8.0
Total.....	119	100.0

On the basis of an anthropometric table compiled by the Prudential Insurance Company, and based on the average measurements of ten thousand four hundred and twenty-three normal babies from six to forty-eight months old in thirty one states the following statistics were obtained relative to babies of those age groups at Winona and at Plymouth. The weight and height only were given in our statistics. The number of children in each age group who are normal in weight and height is given, also the number above and below normal, both for males and females. Very few children were found whose weight and height were exactly the normal average given in the table. At Plymouth seventy-five percent of males were above the average weight and only twenty-nine percent above the average height, while fifty six percent of females were above the average weight, twenty-eight percent above the average height, and one or four percent, was normal.

At Winona thirteen percent of males and twenty nine percent of females were above the average weight and forty-seven percent of males and fifty seven percent of females were above the normal height, with one female, seven percent corresponding to the normal average. The upper table is the Plymouth average, the lower Winona.

COMPARATIVE TABLE OF THE WEIGHT AND HEIGHT OF CHILDREN EXAMINED.

No. I.	Weight								Height							
	Males				Female				Male				Female			
Age by Months.	A	B	N	NG.	A	B	N	NG.	A	B	N	NG.	A	B	N	NG.
6-12 .....	7	1	0	0	1	4	0	0	3	3	0	2	0	1	1	3
13-24 .....	5	1	0	0	6	4	0	0	2	2	0	2	3	3	0	4
25-36 .....	4	2	0	0	2	2	0	0	2	3	0	1	1	2	0	1
37-48 .....	2	2	0	0	5	1	0	0	0	3	0	1	3	2	0	1
Total .....	18	6	0	0	14	11	0	0	7	11	0	6	7	8	1	9
Percent .....	75	25	0	0	56	44	0	0	29	46	0	25	28	32	4	36
No. II.	A	B	N	NG.	A	B	N	NG.	A	B	N	NG.	A	B	N	NG.
6-12 .....	0	5	0	0	0	3	0	0	3	2	0	0	2	1	0	0
13-24 .....	1	3	0	0	3	2	1	0	2	2	0	0	5	1	0	0
25-36 .....	1	5	0	0	1	4	0	0	2	4	0	0	1	4	0	0
Total .....	2	13	0	0	4	9	1	0	7	8	0	0	8	6	0	0
Percent .....	13	87	0	0	29	64	7	0	47	53	0	0	57	43	0	0

A—Above normal average.

B—Below normal average.

N—Normal average.

NG—Not given in history

Of the Plymouth children it will be noted that sixty five percent are above the average normal weight, only twenty-nine percent are above the average normal height. On the other hand

only twenty percent of the Winona children are above the average normal weight while fifty-two percent are above the average normal height. No one wishes every child to be an average normal child, yet every parent is interested in knowing whether his child is equal to the average, and if the child falls below that norm he will try to discover the reason.

In all the Child Welfare work, the newspapers were of the greatest assistance. Everywhere an unusual amount of publicity was given the meetings. At Plymouth the exhibit in the basement of a church was characterized by a local paper as one of the most profitable features of the centennial celebration. A large number of exhibits had been borrowed from various societies both state and national, covering all phases of child welfare work. Ten booths had been arranged by the local management showing correct and incorrect methods in child care, in diet, clothing, books, drugs, savings, and many other things. Hygienic conditions in the home of Mrs. DoCare were shown in pleasing contrast with the dirty home of Mrs. Don't Care. Proper equipment for a nursery, a home-made refrigerator, and the contrast between the amount of sediment from dirty milk and clean milk all were shown. Free literature provided by The State Board of Health, The Federal Child's Bureau and by Insurance companies was eagerly sought.

Several hundred persons saw the exhibits and the practical demonstrations in child care and listened attentively to the talks on the health of children.

As a result of this welfare day statistics from the examination charts have been placed on file and plans have been made to provide milk for some poorly nourished children, to employ a Public Health Nurse, and to establish a clinic on certain days of each week for those children whose parents cannot afford to pay for needed attention. As one local editor remarked "Mrs. Boys has given the people of Plymouth something to think about, and the effect will be great benefit in health to babies and older children." Mrs. Boys was chairman of the Committee of Arrangements.

In all these conferences a commendable spirit of helpfulness and co-operation has been shown, not only by committee workers, and by members of the medical and dental professions, but by all who were any way concerned. In addition to State Board of Health work, much work of value is now being done in the State of Indiana largely by local business and social organizations.

There is great need for a central organization which would result in greater uniformity and co-ordination of the efforts being made, and in the elimination of useless or even harmful work by persons who fail to understand the real need. If all the energy now being expended could be wisely directed much more could be accomplished. Only by wisely directed centralized effort can Indiana meet her obligation to the children of the State, as expressed in the

#### INDIANA CHILD CREED.

Every child has the inalienable right to be born free from disease, free from deformity and with pure blood in its veins and arteries. Every child has the inalienable right to be loved; to have its individuality respected; to be trained wisely in mind, body and soul; to be protected from disease, from evil influences and evil persons; and to have a fair chance in life. In a word, to be brought up in the fear and admonition of the Lord.

That State is delinquent which does not ceaselessly strive to secure these inalienable rights to its children.

#### ABSTRACT OF TALK ON SOCIAL HYGIENE.

ADA E. SCHWEITZER, M. D.

The social hygiene movement is of vital importance to the race. The stability of our institutions depends fundamentally upon its success. The measures heretofore proposed for the eradication of the social evil and the promotion of social hygiene, commendable in themselves, have not been entirely successful. An analysis of existing conditions shows that many of these measures have been based on the social and economic features of the evil and have failed to recognize the importance of its origin in the perversion of the physiological sex instinct, and the failure to realize the value of this instinct in the preservation of racial integrity. The equal racial responsibility of both male and female, and the value to the individual and to the race of proper self control and temperance in all things must form the basis of every child's training before we shall in any degree arrive at a proper solution of our problem.

The age periods requiring the greatest watchfulness are first, early infancy when the sensitive nervous system of the babe is accumulating with incredible rapidity impressions which will determine the trend of its character formation at the time of

puberty; second the age from four to six the curious age, when the child's greatest desire is to know, when the truth will be received without the personal application that would be likely to be made once the sex instinct has developed; third the age of puberty when proper understanding and guidance are most essential and are most difficult. Patient persistent effort will be required to direct the energies of the child toward the highest ideals of manhood and womanhood, not only as an aim worthy in itself but as an obligation to provide the best parents for the next generation.

Quoting from John H. Stokes, A.B., M.D., "The control of sexual life is a complex affair in which the habit of self control in many other activities of life bears an essential part. It is too complex to permit of the training of an inhibitory mechanism in a few days or hours on the basis of merely formal knowledge. A lifelong habit of repression and control begun in early childhood is none too good a foundation on which to build an effective sexual idealism." Instead of "repression" we would substitute "expression" for the proper expression of the nature of the child in healthful physical, mental, and moral pursuits minimizes the necessity for actual repression of the sex instinct.

For immediate need a constructive program should include first of all public health control of syphilis and gonorrhea as infectious diseases, and such provision for treatment should be made as would insure others against the danger of infection, and the complete cure of the infected person. Where there is need provision should be made for social and economic reinstatement of the patient. Obligatory control should be the rule for those who are not amenable to argument or reason. The improvement of economic conditions which would enable persons to marry and to provide for a family during their reproductive prime is a consideration of great practical importance. In conclusion the vigorous enforcement of such measures as have been enacted, and the prevention of reproduction among persons known to be feeble minded will aid as measures of control.



# Statistical Report of Vital Statistics for 1916.





## STATISTICAL REPORT, 1916.

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This report is for the calendar year 1916. The population is that of the United States Census.

In the following tables the causes of death are arranged according to the International List of Causes of Death, which has been adopted by all the registration States of the country. The International List of Causes of Death was used by the United States Bureau of the Census in its last statistical compilation of causes of death.

Table 1 is a classification of all deaths, with rates per 100,000 population, classified and arranged according to the International List of Causes of Death.

Table 2 is a classification of deaths from all causes by months, ages, color, nationality and conjugal condition.

Table 3 gives deaths from all causes by counties, months, ages, color, nationality and conjugal condition.

Table 4 gives deaths from certain diseases by geographical sections and by counties.

Table 5 gives death rates from certain important causes by counties in geographical sections.

Table 6 gives deaths from certain important causes by cities.

Table 7 gives death rates from certain important causes by cities.

Table 8 gives mortality in Indiana by geographical sections, urban and rural, important ages, important causes, and death rates.

Table 9 gives annual death rates for ten years, 1907 to 1916 inclusive, with average of cities of 5,000 population and over, compared with rural and state rates.

Table 10 gives deaths according to occupations by months and ages.

Table 11 gives total deaths by occupations, and percentage of deaths from pulmonary tuberculosis.

Table 12 gives number of cases of disease reported by counties.

Table 13 gives deaths of infants by days, weeks and months.

Table 14 gives births by counties and deaths under 1 year with rates per 1,000.

Table 15 gives births and birth rates by counties.

Table 16 gives births and birth rates per 1,000 for cities.

Table 17 gives number of children born each month, grouped ages of parents.

Table 18 gives number of children born, sex, color, number born to each mother, nationality of parents.

Table 19 gives plural births and stillbirths.

Table 20 gives marriages by months, color and nationality.

Table 21 gives marriages, grouped ages.

## BIRTHS.

The total number of births reported in the state during the year 1916 was 63,312, of which number 32,421 were males and 30,981 females. Of the total males 31,911 were white, and 510 colored. Of the total females, 30,432 were white and 459 colored. In the preceding year 61,850 births were reported, males 31,701, females 30,149. This shows an increase over the preceding year of 1,462. March had the largest number of births, 5,699; and November the lowest number, 4,848. January had the largest number of deaths, 4,161, and June the lowest number, 2,576. The birth (63,312) rate 22.1 exceeds the death (38,249) rate 13.3 per 1,000.

The nationality of parents appears as follows: American born fathers, 56,109; American born mothers, 57,153. Foreign born fathers, 6,324; foreign born mothers, 5,522. Nationality not reported, fathers, 248; mothers, 6.

Of the total number of children born to each mother, 17,326 were first; 14,587 were second, 10,155 were third, 6,966 were fourth, 4,759 were fifth, 3,236 were sixth, 2,296 were seventh, 1,583 were eighth, 996 were ninth, 601 were tenth, 352 were eleventh, 428 were twelfth, and 27 not reported.

As to ages of parents, 1,000 fathers and 6,726 mothers were under 20 years of age; 29,373 fathers and 35,291 mothers were in the age period 20 to 30; 22,825 fathers and 17,914 mothers were in the age period 30 to 40; 7,954 fathers and 2,697 mothers in the age period 40 to 50; 1,090 fathers and 4 mothers in the age period 50 to 60; 88 fathers in age period 60 to 70, 13 fathers in the age period 70 to 80; 338 fathers and 49 mothers ages not reported.

Two thousand, one hundred and forty-one stillbirths not included in total number of births and deaths.

The illegitimate births numbered 920, of which 456 were males and 465 females. The plural births numbered 625, 628 males and 624 females. Of the plural births two were triplets.

## MARRIAGES.

Total marriages reported 31,540. This is an increase of 2,515 compared with the previous year. June had the greatest number of marriages, 3,374; and March the lowest number, 2,198. The general statistics on marriages will be found in tables 20 and 21.

## DEATHS.

Total number of deaths reported in 1916, 38,249; rate 13.3. In the preceding year 35,416 deaths; rate 12.5. Males numbered 20,495, females 17,754. White males numbered 19,755, colored 740. White females numbered 17,076, colored 678.

American born, 18,384 males; 16,325 females. Foreign born, 2,002 males; 1,417 females. Nationality not reported, 109 males; 12 females. Single males numbered 7,811. Single females 5,500. Married males numbered, 9,036; married females, 6,663. Widowed or divorced males, 3,506; females, 5,587. Conjugal condition not reported, 142 males and 4 females.

The number of deaths with rates for ten years appears in the following table:

<i>Year.</i>	<i>Deaths.</i>	<i>Annual Rate.</i>
1907	36,461	13.4
1908	36,224	13.2
1909	36,579	13.3
1910	36,513	13.5
1911	35,231	13.0
1912	35,771	13.1
1913	36,710	13.2
1914	35,869	12.8
1915	35,416	12.5
1916	38,249	13.3

Of the total number of deaths, 5,418 or 14.1 per cent. occurred under one year of age. In the age period 1 to 4, 2,065 deaths occurred making a total loss of children under 5 years of age of 7,483 or 19.5 of the total deaths, an increase of .7 per cent. over the preceding year. This is 11.8 per cent. of the total births reported and shows an increase over the preceding year of 1.1. In the age period 5 to 19, there were 2,286 deaths or 3.6 per cent. of the total number, a decrease of 2.1 per cent. over the preceding year. In the age period of 20 to 49, practically the prime of life, there were 8,364 deaths, equal to 21.8 per cent. of the total, an increase of .1 per cent. over the preceding year.

## DEATHS FROM ALL CAUSES (ABRIDGED) FOR THE PAST SEVEN YEARS WITH AVERAGES.

The following table gives the deaths for all causes for the past seven years, with averages for each cause and Chart No. 1 gives a graphic representation of deaths from all causes for 1916.

DEATHS FROM ALL CAUSES (Abridged).

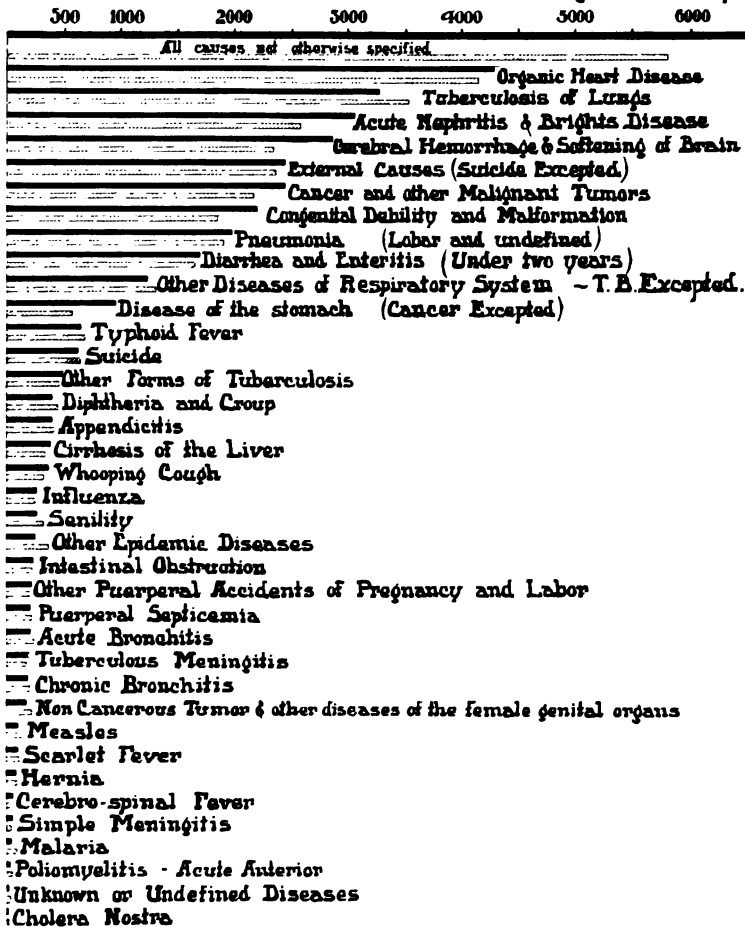
	1910	1911	1912	1913	1914	1915	1916	Av.
All causes not otherwise specified.....	5,588	5,445	5,665	5,653	5,813	5,652	6,287	5,726
Organic disease of the heart.....	3,956	3,972	4,419	3,998	3,915	4,214	4,253	4,104
Tuberculosis of the Lung.....	3,921	3,588	3,419	3,446	3,471	3,444	3,259	3,507
Acute Nephritis and Bright's Disease.....	2,021	2,210	2,443	2,533	2,694	2,787	3,026	2,530
Cerebral hemorrhage and softening of the brain.....	1,959	2,087	2,111	2,224	2,321	2,615	2,807	2,303
Deaths by external causes (Suicide excepted).....	2,168	2,292	2,288	2,605	2,270	2,121	2,413	2,306
Cancer and other Malignant tumors.....	1,372	1,919	2,018	2,226	2,193	2,314	2,393	2,133
Pneumonia (Lobar and Undefined).....	1,823	1,710	1,746	1,679	1,718	1,911	2,136	1,817
Congenital debility and malformation.....	1,798	1,816	1,836	1,972	1,956	1,845	1,960	1,886
Diarrhoea and enteritis (Under two years).....	2,049	1,629	1,625	1,832	1,627	1,156	1,679	1,656
Other diseases of the respiratory system (Tuberculosis excepted).....	1,188	1,180	1,388	1,246	1,425	1,463	1,206	1,299
Influenza.....	701	659	420	406	292	509	968	565
Typhoid Fever.....	934	736	652	701	591	415	604	662
Disease of the Stomach (Cancer excepted).....	547	579	658	680	649	532	601	606
Suicides.....	386	445	458	441	478	425	484	445
Other Forms of Tuberculosis.....	534	438	430	444	404	389	387	432
Diphtheria and Croup.....	381	374	518	516	385	302	386	409
Cirrhosis of the Liver.....	283	329	309	296	328	390	373	329
Appendicitis.....	272	282	316	294	333	307	354	308
Intestinal Obstruction.....	236	249	264	225	248	262	258	249
Whooping Cough.....	459	320	255	363	295	168	252	301
Senility.....	515	409	385	370	286	269	250	355
Puerperal Septicemia.....	229	239	231	205	220	185	224	219
Other Puerperal Accidents of Pregnancy and Labor.....	221	200	219	217	237	213	219	218
Chronic Bronchitis.....	217	210	232	227	197	201	206	213
Measles.....	462	280	73	461	151	69	204	243
Non-cancerous tumor and other diseases of the female genital organs.....	173	199	150	189	174	145	184	173
Tuberculous meningitis.....	255	204	199	218	202	188	177	206
Acute Bronchitis.....	247	210	246	217	211	185	163	211
Scarlet Fever.....	205	179	113	199	114	102	96	144
Simple Meningitis.....	130	123	82	95	81	107	95	101
Hernia.....	75	93	81	95	109	81	79	87
Poliomyelitis (Acute anterior).....	53	68	47	38	27	16	51	43
Cerebro-spinal fever.....	22	26	36	27	81	63	45	43
Malaria.....	151	124	98	71	66	56	41	87
Unknown or ill-defined diseases.....	81	68	31	33	22	27	20	40
Cholera nostras.....	20	12	15	8	10	8	6	11
Smallpox.....	1	3	12	11	8	10	1	6
<b>Total deaths from all causes.....</b>	<b>36,513</b>	<b>35,231</b>	<b>35,771</b>	<b>36,710</b>	<b>35,869</b>	<b>35,416</b>	<b>38,249</b>	<b>36,247</b>

# INDIANA DEATHS FROM ALL CAUSES

■ 1916

Chart 1

□ Average for last ten yrs



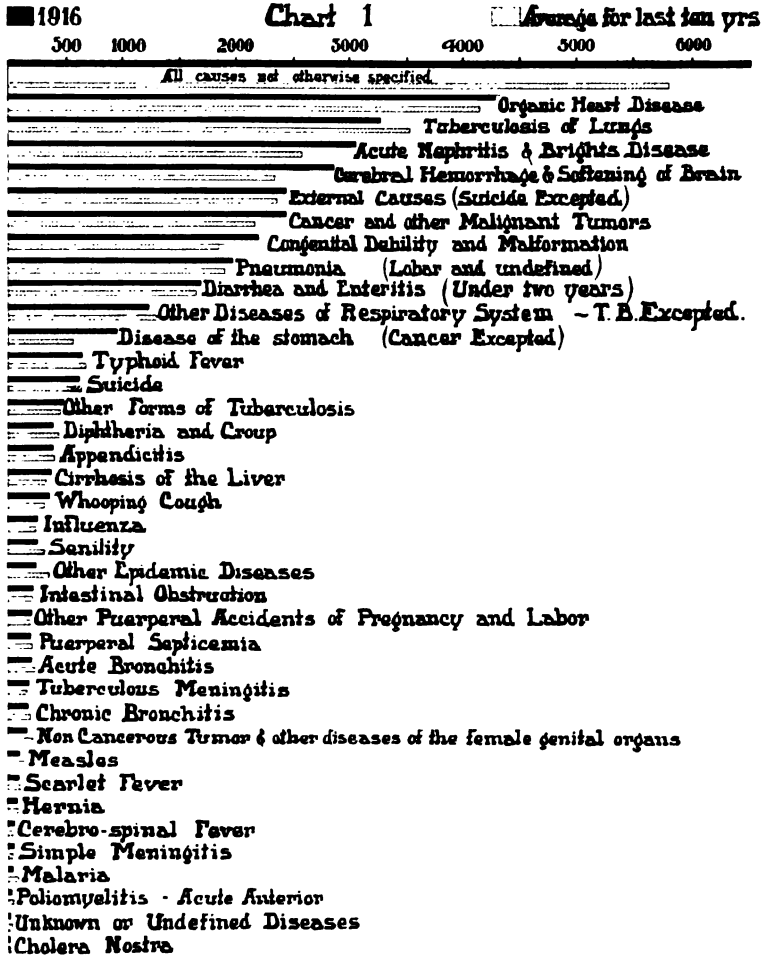
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Deaths by external causes (Suicide excepted).....	2,168	2,202	2,288	2,605	2,270	2,121	2,413	2,308
Cancer and other Malignant tumors.....	1,872	1,919	2,018	2,226	2,193	2,314	2,393	2,133
Pneumonia (Lobar and Undefined).....	1,823	1,710	1,746	1,679	1,718	1,911	2,136	1,817
Congenital debility and malformation.....	1,798	1,816	1,836	1,972	1,956	1,865	1,960	1,886
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Appendicitis.....	272	282	316	294	333	307	354	308
Intestinal Obstruction.....	236	249	264	225	248	262	258	249
Whooping Cough.....	459	320	255	363	295	168	252	301
Senility.....	515	409	385	370	286	269	250	355
Puerperal Septicemia.....	229	239	231	205	220	185	224	219
Other Puerperal Accidents of Pregnancy and Labor.....	221	200	219	217	237	213	219	218
Chronic Bronchitis.....	217	210	232	227	197	201	206	213
Measles.....	462	280	73	461	151	69	204	243
Non-cancerous tumor and other diseases of the female genital organs.....	173	199	150	189	174	145	184	173
Tuberculous meningitis.....	255	204	199	218	202	188	177	206
Acute Bronchitis.....	247	210	246	217	211	185	163	211
Scarlet Fever.....	205	179	113	199	114	102	96	144
Simple Meningitis.....	130	123	82	95	81	107	95	101
Hernia.....	75	93	81	95	109	81	79	87
Poliomyelitis (Acute anterior).....	53	68	47	38	27	16	51	43
Cerebro-spinal fever.....	22	26	36	27	81	63	45	43
Malaria.....	151	124	98	71	66	56	41	87
Unknown or ill-defined diseases.....	81	68	31	33	22	27	20	40
Cholera nostras.....	20	12	15	8	10	8	6	11
Smallpox.....	1	3	12	11	8	10	1	6
Total deaths from all causes.....	36,513	35,231	35,771	36,710	35,869	35,416	38,249	36,247

# INDIANA DEATHS FROM ALL CAUSES



YEARS	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916
Total Deaths	4,471	4,527	4,479	4,710	4,230	4,048	4,108	4,077	4,021	3,823
Male Deaths	1,964	2,085	2,112	2,191	2,032	1,910	2,018	2,001	2,016	1,950
Female Deaths	2,328	2,442	2,367	2,519	2,198	2,138	2,090	2,076	2,005	1,893
Mothers Age 18-40, prime of life	826	875	1,286	1,412	1,212	1,168	1,101	1,201	1,062	1,020
Fathers age 18-40, prime of life	343	383	995	1,040	970	923	944	1,086	974	928
Orphans made under 12 yr. of age	2,340	2,407	2,375	2,490	2,041	2,001	2,046	2,009	1,897	1,707
Homes invaded	3,849	4,022	3,866	3,909	3,716	3,500	3,611	3,450	3,334	3,004

MONTHS	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
January	373	411	389	409	399	376	371	328	372	333	376
February	428	425	374	407	376	388	332	375	361	341	380
March	449	397	451	498	424	452	427	397	418	410	410
April	455	446	449	462	401	397	392	398	383	373	415
May	384	412	418	402	370	375	397	389	403	359	390
June	356	372	410	399	361	368	339	337	322	339	353
July	377	357	349	373	374	318	341	335	308	292	342
August	359	314	353	368	339	286	328	301	291	276	324
September	340	341	322	354	267	269	281	317	272	257	302
October	327	330	327	359	306	393	296	304	281	286	330
November	315	344	305	311	303	280	297	276	278	266	297
December	329	338	332	368	310	311	299	320	332	291	323
Totals . . . . .	4,522	4,527	4,479	4,710	4,230	4,048	4,108	4,077	4,021	3,823	4,254

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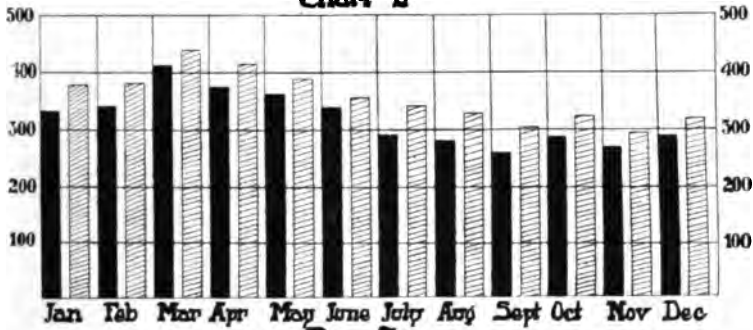
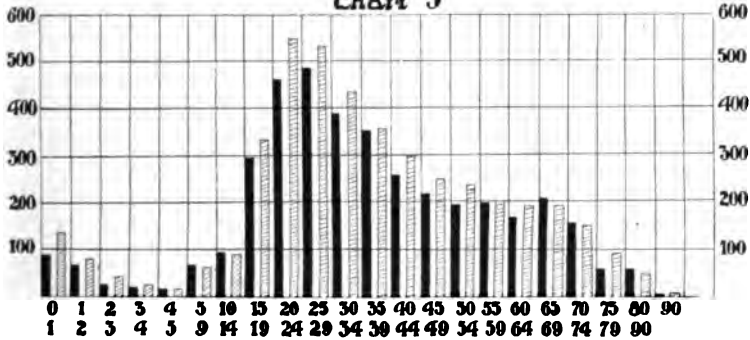
# INDIANA TUBERCULOSIS ALL FORMS

■ 1916

By Months

▨ Average for last ten yrs

Chart 2

By Ages  
Chart 3

## PULMONARY TUBERCULOSIS.

*Deaths by Months with Average for Past Ten Years.*

MONTHS	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
January.....	330	358	334	357	340	318	323	289	326	297	327
February.....	292	363	310	340	320	333	289	340	314	312	331
March.....	396	380	385	420	369	385	372	339	371	355	377
April.....	392	379	365	378	331	321	349	342	319	318	349
May.....	329	347	347	324	306	322	325	323	344	306	327
June.....	303	318	330	322	310	252	288	292	269	281	296
July.....	314	290	276	291	300	270	283	283	272	242	282
August.....	312	257	295	278	283	244	274	254	241	217	265
September.....	286	278	253	281	208	196	232	259	218	213	242
October.....	276	275	273	294	244	234	235	251	249	241	257
November.....	276	293	253	254	256	226	243	234	241	229	250
December.....	282	287	287	304	258	263	260	265	280	248	273
Totals.....	3,888	3,825	3,706	3,853	3,525	3,364	3,446	3,471	3,444	3,259	3,578

## PULMONARY TUBERCULOSIS.

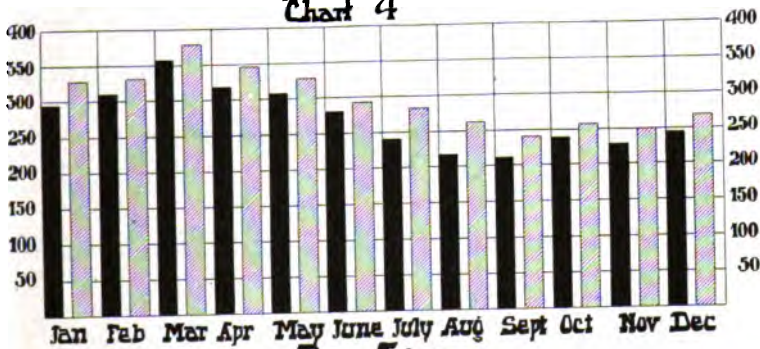
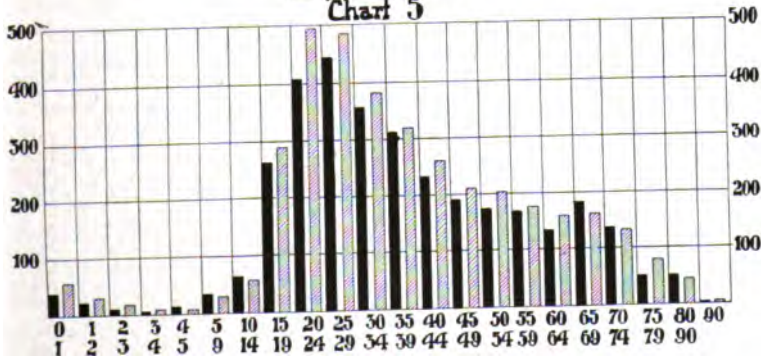
*Deaths by Ages with Average for Past Ten Years.*

AGES	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
Under 1 year.....	63	78	48	63	52	53	55	45	34	36	52
1 to 2 years.....	31	27	30	33	22	32	34	15	27	20	27
2 to 3 years.....	19	15	14	13	13	16	11	14	15	8	13
3 to 4 years.....	6	8	8	9	5	7	11	7	7	4	7
4 to 5 years.....	10	4	5	9	4	4	7	10	7	9	6
5 to 9 years.....	29	23	30	24	26	29	41	23	28	32	28
10 to 14 years.....	66	62	64	62	53	57	56	49	51	63	58
15 to 19 years.....	356	348	329	317	290	229	260	230	264	261	288
20 to 24 years.....	623	562	509	578	480	451	439	449	433	405	492
25 to 29 years.....	517	499	502	520	474	507	455	452	452	445	482
30 to 34 years.....	430	395	267	431	375	370	381	426	369	354	379
35 to 39 years.....	318	316	322	309	333	301	320	305	325	312	316
40 to 44 years.....	234	278	277	263	263	253	249	263	270	232	258
45 to 49 years.....	238	220	255	204	192	186	207	201	210	189	210
50 to 54 years.....	197	188	183	242	206	183	201	221	228	170	201
55 to 59 years.....	165	199	165	181	159	147	169	200	180	166	173
60 to 64 years.....	153	170	179	158	151	141	156	148	168	135	155
65 to 69 years.....	163	169	142	165	168	160	136	171	146	184	160
70 to 74 years.....	126	138	120	141	136	116	126	130	112	131	127
75 to 79 years.....	88	76	101	86	78	72	86	67	78	50	78
80 to 90 years.....	43	42	48	39	41	47	37	39	40	50	42
90 years and over.....	1	3	8	6	4	4	4	6	.....	2	3

# INDIANA PULMONARY TUBERCULOSIS

■ 1916      By Months      ▨ Average for last ten yrs

Chart 4

By Ages  
Chart 5

The following table of deaths by months for 1916 shows January had the greatest number of deaths, and June the lowest number.

January.....	4,161	July.....	3,149
February.....	3,354	August.....	3,100
March.....	3,672	September.....	3,006
April.....	3,305	October.....	3,006
May.....	2,986	November.....	2,802
June.....	2,576	December.....	3,132

February, March and April had the most tuberculosis deaths.

January, February and March had the most pneumonia deaths.

July, August and September had the most deaths from diarrheal diseases.

August, September and October were highest in typhoid deaths.

**TUBERCULOSIS DEATH RATES PER 100,000 BY COUNTIES FOR 1916  
IN INDIANA.**

State Rate.....	133.7
Northern Counties.....	129.5
Central Counties.....	147.3
Southern Counties.....	158.2
Urban.....	119.5
Rural.....	109.3

COUNTIES.	Tuberculosis All Forms.	COUNTIES.	Tuberculosis All Forms.
Adams.....	68.1	Gibson.....	108.8
Allen.....	89.5	Grant.....	131.6
Bartholomew.....	139.2	Green.....	99.9
Benton.....	78.8	Hamilton.....	110.5
Blackford.....	154.4	Hancock.....	136.6
Boone.....	135.1	Harrison.....	128.6
Brown.....	125.4	Hendricks.....	95.9
Carroll.....	83.4	Henry.....	146.4
Cass.....	145.6	Howard.....	137.5
Clark.....	142.1	Huntington.....	85.1
Clay.....	74.8	Jackson.....	190.2
Clinton.....	98.4	Jasper.....	68.6
Crawford.....	348.5	Jay.....	55.7
Davless.....	122.6	Jefferson.....	180.7
Dearborn.....	87.2	Jennings.....	84.2
Decatur.....	142.3	Johnson.....	140.6
Dekalb.....	51.1	Knox.....	158.2
Delaware.....	142.7	Kosciusko.....	74.6
Dubois.....	176.2	Lagrange.....	113.3
Elkhart.....	85.6	Lake.....	121.7
Fayette.....	154.7	Laporte.....	110.8
Floyd.....	168.0	Lawrence.....	136.1
Fountain.....	82.3	Madison.....	135.6
Franklin.....	124.0	Marion.....	197.3
Fulton.....	88.9	Marshall.....	82.4

## TUBERCULOSIS DEATH RATES—Continued.

COUNTIES.	Tuberculosis All Forms.	COUNTIES.	Tuberculosis All Forms.
Martin.....	120.0	Shelby.....	121.7
Miami.....	85.0	Spencer.....	174.2
Monroe.....	145.9	Starke.....	84.6
Montgomery.....	133.7	Steuben.....	75.9
Morgan.....	148.7	St. Joseph.....	148.7
Newton.....	47.5	Sullivan.....	84.1
Noble.....	88.6	Switzerland.....	161.4
Ohio.....	115.5	Tippecanoe.....	129.2
Orange.....	183.5	Tipton.....	147.6
Owen.....	128.1	Union.....	31.9
*Parke.....	379.8	Vanderburg.....	252.6
Perry.....	152.1	Vermillion.....	153.8
Pike.....	193.1	Vigo.....	119.0
Porter.....	71.8	Wabash.....	66.7
Posey.....	141.7	Warren.....	101.0
Pulaski.....	37.5	Warrick.....	139.5
Putnam.....	136.1	Washington.....	160.6
Randolph.....	125.3	Wayne.....	127.9
Ripley.....	164.3	Wells.....	66.1
Rush.....	118.8	White.....	96.4
Scott.....	137.5	Whitley.....	75.9

\*30 deaths were non-residents. Died in State T. B. Hospital.

## MONTHLY ANALYSIS OF TUBERCULOSIS.

(As published in *Monthly Bulletin*.)

January, 1916.—Total number of tuberculosis deaths 326, of which 292 were of the pulmonary form and 34 other forms. Male tuberculosis deaths numbered 146, females 180. Of the males, 30 were married in the age period 18 to 40 and left 60 orphans under 12 years of age. Of the females, 62 were married in the same age period as above, and left 124 orphans under 12 years of age. Total number of orphans made in one month by this preventable disease, 184. Number of homes invaded, 311.

February, 1916.—Total number of tuberculosis deaths 339, of which 304 were of the pulmonary form and 35 other forms. Male tuberculosis deaths numbered 174; females, 165. Of the males, 42 were married in the age period 18 to 40 and left 84 orphans under 12 years of age. Of the females, 48 were married in the same age period as above and left 96 orphans under 12 years of age. Total number of orphans made in one month by this preventable disease, 180; number of homes invaded, 326.

March, 1916.—Total number of tuberculosis deaths 400, of which 350 were of the pulmonary form and 50 other forms. Male tuberculosis deaths numbered 215; females 185. Of the males, 40

were married in the age period of 18 to 40 and left 80 orphans under 12 years of age. Of the females, 63 were married in the same age period as above, and left 126 orphans under 12 years of age. Total number of orphans under twelve years of age made in one month by this preventable disease, 206. Number of homes invaded, 387.

April, 1916.—Total number of tuberculosis deaths 357, of which 306 were of the pulmonary form and 51 other forms. Male tuberculosis deaths numbered 197, females 160. Of the males, 50 were married in the age period of 18 to 40 and left 100 orphans under 12 years of age. Of the females, 48 were married in the same age period as above, and left 96 orphans under 12 years of age. Total number of orphans under 12 years of age made in one month by this preventable disease, 196. Number of homes invaded, 341.

May, 1916.—Total number of tuberculosis deaths 351 of which 299 were of the pulmonary form and 52 other forms. Male tuberculosis deaths numbered 180; females 171. Of the males 30 were married in the age period 18 to 40 and left 60 orphans under 12 years of age. Of the females 69 were married in the same age period as above and left 138 orphans under 12 years of age. Total orphans made in one month by this preventable disease, 198. Number of homes invaded, 336.

June, 1916.—Total number of tuberculosis deaths 323, of which 270 were of the pulmonary form and 53 other forms. Male tuberculosis deaths numbered 155; females 168. Of the males, 23 were married in the age period 18 to 40 and left 46 orphans under 12 years of age. Of the females, 60 were married in the same age period as above and left 120 orphans under 12 years of age. Total orphans made in one month by this preventable disease, 166. Number of homes invaded, 310.

July, 1916.—Total number of tuberculosis deaths 290, of which 241 were of the pulmonary form and 49 other forms. Male tuberculosis deaths numbered 129, females 161. Of the males, 27 were married in the age period 18 to 40 and left 54 orphans under 12 years of age. Of the females, 56 were married in the same age period as above and left 112 orphans under 12 years of age. Total orphans made in one month by this preventable disease, 166. Number of homes invaded, 277.

August, 1916.—Total number of tuberculosis deaths 270, of which 211 were of the pulmonary form and 59 other forms. Male tuberculosis deaths numbered 140; females 130. Of the males, 21

were married in the age period 18 to 40 and left 42 orphans under 12 years of age. Of the females, 36 were married in the same age period as above and left 72 orphans under 12 years of age. Total orphans made in one month by this preventable disease, 114. Number of homes invaded, 256.

September, 1916.—Total number of tuberculosis deaths 255, of which 211 were of the pulmonary form and 44 other forms. Male tuberculosis deaths numbered 127; females 128. Of the males, 27 were married in the age period 18 to 40 and left 54 orphans under 12 years of age. Of the females, 34 were married in the same age period as above, and left 68 orphans under 12 years of age. Total orphans made in one month by this preventable disease, 122. Number of homes invaded, 241.

October, 1916.—Total number of tuberculosis deaths 278, of which 230 were of the pulmonary form and 48 other forms. Male tuberculosis deaths numbered 154; females 124. Of the males, 29 were married in the age period 18 to 40 and left 58 orphans under 12 years of age. Of the females, 35 were married in the same age period as above, and left 70 orphans under 12 years of age. Total orphans made in one month by this preventable disease, 128. Number of homes invaded, 265.

November, 1916.—Total number of tuberculosis deaths 261, of which 222 were of the pulmonary form and 39 other forms. Male tuberculosis deaths numbered 137, females 124. Of the males, 22 were married in the age period 18 to 40 and left 44 orphans under 12 years of age. Of the females, 32 were married in the same age period as above and left 64 orphans under 12 years of age. Total orphans made in one month by this preventable disease, 108. Number of homes invaded, 247.

December, 1916.—Total number of tuberculosis deaths 278, of which 234 were of the pulmonary form, and 44 other forms. Male tuberculosis deaths numbered 133, females 145. Of the males, 32 were married in the age period 18 to 40 and left 64 orphans under 12 years of age. Of the females, 39 were married in the same age period as above, and left 78 orphans under 12 years of age. Total number of orphans made in one month by this preventable disease, 142. Number of homes invaded, 262.

# PNEUMONIA, ALL FORMS.

*Deaths by Months with Average for Past Ten Years.*

MONTHS	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
January.....	445	425	303	349	484	483	444	447	434	705	451
February.....	646	454	384	237	422	413	414	370	580	432	444
Mar. h.....	532	414	546	417	373	441	452	510	566	472	472
April.....	290	277	436	223	338	323	271	457	396	366	337
May.....	276	166	188	193	172	154	194	210	138	209	189
June.....	144	74	64	127	56	71	99	88	91	100	91
July.....	62	45	47	59	56	60	85	70	64	67	61
August.....	68	52	52	79	62	81	63	73	42	61	63
September.....	75	69	75	87	82	93	71	65	86	114	81
October.....	145	103	130	154	116	167	128	109	124	164	134
November.....	218	195	196	199	203	210	214	180	212	271	209
December.....	301	243	253	426	248	342	247	281	365	357	306
Total.....	3,202	2,517	2,638	2,740	2,612	2,838	2,672	2,860	3,098	3,318	2,849

# PNEUMONIA, ALL FORMS.

*Deaths by Ages with Average for Past Ten Years.*

AGES	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
Under 1 year.....	639	623	768	731	595	713	647	695	801	648	686
1 to 2 years.....	209	163	206	207	167	221	193	204	182	196	194
2 to 3 years.....	96	63	103	94	71	105	77	71	83	83	85
3 to 4 years.....	57	19	41	39	44	30	57	45	38	41	41
4 to 5 years.....	29	22	18	23	27	25	20	22	20	24	23
5 to 9 years.....	65	52	65	71	55	60	76	61	71	74	65
10 to 14 years.....	40	35	34	24	29	34	31	39	30	39	33
15 to 19 years.....	63	50	52	50	62	44	40	54	54	71	54
20 to 24 years.....	84	61	53	59	49	57	42	34	49	67	55
25 to 29 years.....	90	50	49	58	52	53	52	53	64	72	59
30 to 34 years.....	87	63	60	62	68	61	59	43	62	67	63
35 to 39 years.....	98	75	66	69	65	62	62	72	77	102	74
40 to 44 years.....	88	71	68	73	77	87	83	71	78	98	79
45 to 49 years.....	100	78	57	69	69	79	71	86	96	109	81
50 to 54 years.....	143	72	85	100	117	98	109	110	114	113	106
55 to 59 years.....	125	101	108	104	108	110	104	116	128	139	114
60 to 64 years.....	172	122	113	114	131	126	105	177	152	205	131
65 to 69 years.....	215	168	162	152	147	161	134	190	179	220	172
70 to 74 years.....	243	212	147	180	209	198	215	197	237	247	209
75 to 79 years.....	238	180	166	187	189	207	218	184	245	285	209
80 to 90 years.....	280	209	183	233	254	258	242	285	287	348	257
90 years and over.....	33	18	34	32	28	49	35	51	41	60	38



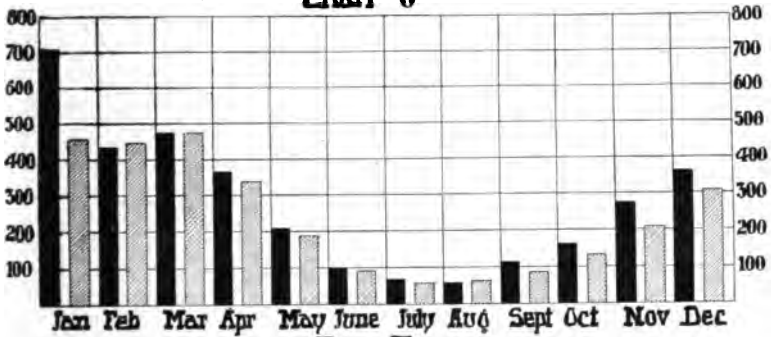
# INDIANA PNEUMONIA ALL FORMS

■ 1916

By Months

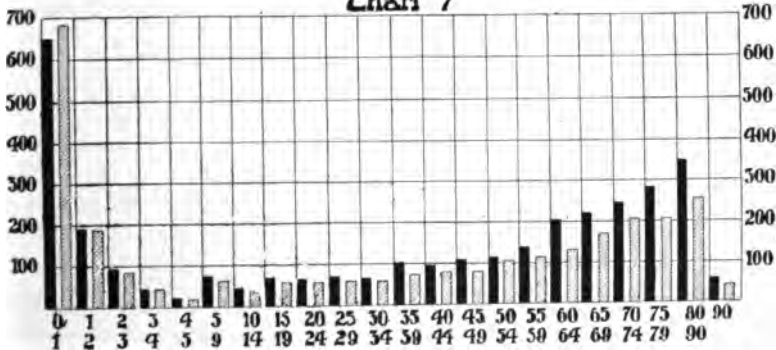
▨ Average for last ten yrs

Chart 6



By Ages

Chart 7



## MONTHLY ANALYSIS OF PNEUMONIA DEATHS.

*(As published in Monthly Bulletin.)*

January, 1916.—Total deaths 697; rate, 287.7 per 100,000. In the preceding month, 350 deaths; rate, 145.8. In the same month last year, 424 deaths; rate, 176.7. Males numbered 365, females 332. Of the pneumonia deaths, 102 were under 1 year of age and 112 in the age period 80 to 100.

February, 1916.—Total deaths 427; rate, 186.6 per 100,000. In the preceding month, 697 deaths; rate, 287.7. In the same month last year, 548 deaths; rate, 252.8. Males numbered 217; females, 210. Of the pneumonia deaths, 64 were under 1 year of age.

March, 1916.—Total deaths 473; rate, 195.2 per 100,000. In the preceding month, 427 deaths; rate, 186.6. In the same month last year, 528 deaths; rate, 219.6. Males numbered 249, females 224. Of the pneumonia deaths, 90 were under 1 year of age.

April, 1916.—Total deaths 367; rate, 156.9 per 100,000. In the preceding month, 473 deaths; rate, 195.2. In the same month last year, 367 deaths; rate, 152.9.

May, 1916.—Total deaths 206; rate, 85.0 per 100,000. In the preceding month, 367 deaths; rate, 156.9. In the same month last year, 135 deaths; rate, 56.2.

June, 1916.—Total deaths 99; rate, 42.3 per 100,000. In the preceding month, 206 deaths; rate, 85.0. In the same month last year, 88 deaths; rate, 37.9.

July, 1916.—Total deaths 65; rate 26.8 per 100,000. In the preceding month, 99 deaths; rate, 42.3. In the same month last year, 62 deaths; rate, 25.8.

August, 1916.—Total deaths 56; rate, 23.1 per 100 000. In the preceding month, 65 deaths; rate, 26.8. In the same month last year, 42 deaths; rate, 17.5.

September, 1916.—Total deaths 105; rate, 44.8 per 100,000. In the preceding month, 56 deaths; rate, 23.1. In the same month last year, 76 deaths; rate, 32.7.

October, 1916.—Total deaths 160; rate, 66 per 100,000. In the preceding month, 105 deaths; rate, 44.8. In the same month last year, 104 deaths; rate, 43.3.

November, 1916.—Total deaths 253; rate, 108.1 per 100,000. In the preceding month, 160 deaths; rate, 66. In the same month last year, 204 deaths; rate, 87.8.

December, 1916.—Total deaths 353; rate, 145.7 per 100,000. In the preceding month, 253 deaths; rate 108.1. In the same month last year, 350 deaths; rate, 145.8. Of the pneumonia deaths, 189 were males, 164 females.

## TYPHOID FEVER.

*Deaths by Months with Average for Past Ten Years.*

MONTHS	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
January.....	72	50	40	55	44	29	27	38	35	28	41
February.....	57	49	21	33	42	42	27	39	23	32	36
March.....	48	49	38	36	36	42	27	44	29	36	38
April.....	38	38	34	36	47	33	28	38	20	40	35
May.....	42	32	36	28	31	35	33	22	16	28	30
June.....	30	32	37	28	28	30	26	32	17	16	27
July.....	58	63	80	45	78	33	48	37	19	38	49
August.....	145	93	119	126	109	70	116	69	48	96	92
September.....	141	121	144	128	91	102	97	71	59	122	107
October.....	133	150	162	168	99	109	125	78	55	96	117
November.....	85	121	110	126	77	81	90	78	56	45	86
December.....	75	87	54	65	54	46	57	45	38	37	55
Totals.....	933	885	875	934	736	652	701	591	415	604	732

## TYPHOID FEVER.

*Deaths by Ages with Averages for Past Ten Years.*

AGES	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
Under 1 year.....	8	11	9	6	1	4	7	5	3	7	6
1 to 2 years.....	7	10	10	12	9	10	12	10	7	9	9
2 to 3 years.....	13	19	15	12	16	11	12	12	10	9	12
3 to 4 years.....	13	19	10	12	11	10	11	8	5	11	10
4 to 5 years.....	10	12	11	18	14	7	12	9	14	12	11
5 to 9 years.....	58	45	64	62	50	49	61	50	32	55	52
10 to 14 years.....	92	72	82	74	65	53	54	40	41	60	63
15 to 19 years.....	145	105	141	125	92	97	97	70	38	97	100
20 to 24 years.....	126	131	102	138	106	78	104	85	55	62	98
25 to 29 years.....	94	96	90	90	64	63	59	60	39	66	72
30 to 34 years.....	79	76	74	74	63	55	51	42	27	56	59
35 to 39 years.....	67	57	55	71	57	44	48	44	31	33	50
40 to 44 years.....	46	45	37	47	40	41	38	43	22	23	38
45 to 49 years.....	41	40	36	45	25	30	28	24	23	27	31
50 to 54 years.....	32	41	34	39	20	24	26	26	14	18	27
55 to 59 years.....	24	29	32	37	28	19	19	18	13	18	23
60 to 64 years.....	28	28	24	11	24	20	19	13	14	6	18
65 to 69 years.....	16	17	20	19	25	15	14	15	11	13	16
70 to 74 years.....	17	15	9	19	17	11	16	10	8	12	13
75 to 79 years.....	10	11	8	14	8	7	7	3	6	8	8
80 to 90 years.....	5	4	10	9	1	4	5	4	2	2	4
90 years and over.....	1	1	2	.....	.....	.....	1	.....	.....	.....	.....

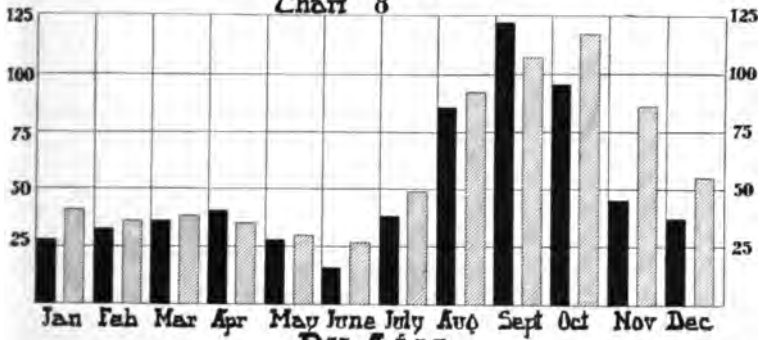
# INDIANA TYPHOID FEVER DEATHS

■ 1916

By Months

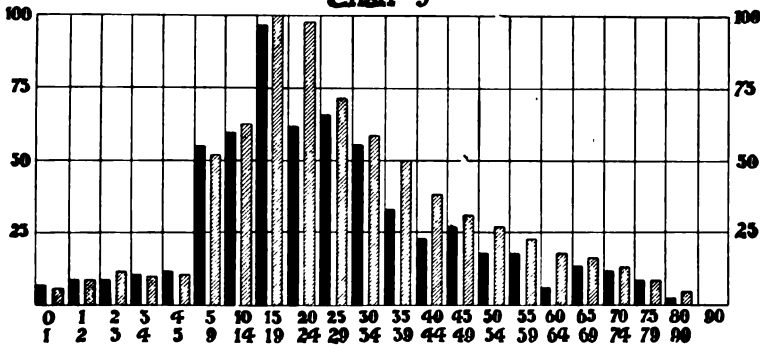
▨ Average for last ten yrs

Chart 8



By Ages

Chart 9



## DEATHS FROM TYPHOID FEVER FOR YEAR 1916.

Total Number Deaths, and Death Rates per 100,000 Population.

COUNTIES	Total	Male	Female	Rates	COUNTIES	Total	Male	Female	Rates
NORTHERN COS.	190	121	69	19.0	CENTRAL CO. Cont.				
Adams.	2		2	9.0	Monroe.	12	7	5	48.6
Allen.	11	6	5	10.7	Montgomery.	4	2	2	13.0
Benton.	1		1	7.8	Morgan.	5	3	2	23.2
Blackford.	1	1		6.1	Owen.	1		1	7.1
Carroll.	1		1	5.5	Parke.	2	1	1	9.0
Cass.	8	3	5	21.1	Putnam.	1		1	4.8
Dekalb.	2	2		7.8	Randolph.	6	2	4	20.3
Elkhart.	4	3	1	7.7	Rush.	1	1		5.1
Fulton.	1		1	5.9	Shelby.	4	1	3	14.3
Grant.	12	8	4	22.8	Tippecanoe.	2	1	1	4.8
Howard.	9	6	3	24.7	Tipton.	9	5	4	51.1
Huntington.	3	2	1	10.2	Union.				
Jasper.	1		1	7.6	Vermillion.	6	4	2	29.0
Jay.	6	4	2	23.8	Vigo.	22	17	5	21.8
Kosciusko.	5	5		17.7	Warren.	4	2	2	36.7
Lagrange.	1	1		6.6	Wayne.	11	7	4	23.8
Lake.	65	40	25	56.4	SOUTHERN COS.	154	79	75	22.4
Laporte.	13	7	6	26.4	Clark.	4	2	2	13.2
Marshall.					Crawford.	2	1	1	16.6
Miami.	2	1	1	6.5	Daviess.	7	4	3	25.2
Newton.					Dearborn.	5	3	2	23.0
Noble.	1	1		4.0	Dubois.	9	5	4	45.2
Porter.	2	2		9.5	Floyd.	6	1	5	19.7
Pulaski.	6	4	2	45.0	Gibson.	4	2	2	13.1
Starke.	4	2	2	37.6	Greene.	4	3	1	9.7
Steuben.	2	2		13.7	Harrison.	5	3	2	24.7
St. Joseph.	20	16	4	20.6	Jackson.	5	2	3	20.2
Wabash.	1	1		3.7	Jefferson.	1		1	4.8
Wells.	3	2	1	13.2	Jennings.	4	2	2	27.9
White.	3	2	1	17.0	Knox.	9	5	4	21.2
Whitley.					Lawrence.	9	2	7	27.2
CENTRAL COUNTIES	260	149	111	22.0	Martin.	5	2	3	37.7
Bartholomew.	3	2	1	11.9	Ohio.	1	1		23.1
Boone.	7	3	4	27.8	Orange.	7	5	2	40.4
Brown.	2	1	1	25.0	Perry.	6	2	4	32.5
Clay.	8	5	3	23.9	Pike.	2		2	10.1
Clinton.	8	5	3	29.1	Posey.	3	1	2	13.7
Decatur.	7	4	3	36.8	Ripley.	2		2	9.1
Delaware.	11	6	5	20.7	Scott.	3	2	1	34.3
Fayette.					Spencer.	10	6	4	48.3
Fountain.	1	1		4.8	Sullivan.	9	4	5	25.2
Franklin.	4	2	2	26.1	Switzerland.	1	1		10.0
Hamilton.	7	6	1	25.7	Vanderburg.	25	17	8	29.6
Hancock.	3	2	1	15.7	Warrick.	6	3	3	26.8
Hendricks.	5	2	3	23.9	Washington.				
Henry.	5	4	1	15.9	URBAN.	324			24.7
Johnson.	6	3	3	29.0	RURAL.	280			18.0
Madison.	13	8	5	19.5	STATE.	604	349	255	21.1
Marion.	80	42	38	26.9					

## MONTHLY ANALYSIS FOR TYPHOID FEVER.

(As published in *Monthly Bulletin*.)

January, 1916.—104 cases in 25 counties with 26 deaths. In the preceding month, 180 cases in 41 counties with 36 deaths. In the same month last year, 112 cases in 35 counties with 34 deaths.

February, 1916.—142 cases in 28 counties with 31 deaths. In the preceding month, 104 cases in 25 counties with 26 deaths. In the same month last year, 71 cases in 26 counties with 23 deaths.

March, 1916.—167 cases in 23 counties with 33 deaths. In the preceding month, 142 cases in 28 counties with 31 deaths. In the same month last year, 101 cases in 25 counties with 35 deaths.

April, 1916.—151 cases in 26 counties with 38 deaths. In the preceding month, 167 cases in 23 counties with 33 deaths. In the same month last year, 67 cases in 26 counties with 18 deaths.

May, 1916.—111 cases in 23 counties with 27 deaths. In the preceding month, 151 cases in 26 counties with 38 deaths. In the same month last year, 67 cases in 24 counties with 17 deaths.

June, 1916.—135 cases in 33 counties with 17 deaths. In the preceding month, 111 cases in 23 counties with 27 deaths. In the same month last year, 70 cases in 28 counties with 17 deaths.

July, 1916.—223 cases in 53 counties with 37 deaths. In the preceding month, 135 cases in 33 counties with 17 deaths. In the same month last year, 149 cases in 37 counties with 17 deaths.

August, 1916. 329 cases in 63 counties with 95 deaths. In the preceding month, 657 cases in 76 counties with 120 deaths. In the same month last year, 249 cases reported from 53 counties with 55 deaths.

September, 1916.—657 cases in 76 counties with 120 deaths. In the preceding month, 940 cases in 69 counties with 81 deaths. In the same month last year, 278 cases in 55 counties with 58 deaths.

October, 1916.—940 cases in 69 counties with 81 deaths. In the preceding month, 223 cases in 53 counties with 37 deaths. In the same month last year, 241 cases in 54 counties with 46 deaths.

November, 1916.—209 cases in 50 counties with 45 deaths. In the preceding month, 329 cases in 63 counties with 95 deaths. In the same month last year, 133 cases in 45 counties with 57 deaths.

December, 1916.—128 cases reported in 38 counties with 35 deaths. In the preceding month, 209 cases in 50 counties with 45 deaths. In the same month last year, 180 cases in 41 counties with 36 deaths.

### DIPHTHERIA.

*Deaths by Months with Average for Past Ten Years.*

MONTHS	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
January.....	43	42	38	42	40	25	70	46	33	40	39
February.....	41	28	24	19	31	29	53	41	30	24	32
March.....	35	24	19	32	22	25	27	35	21	18	26
April.....	27	12	10	15	17	19	22	21	14	21	17
May.....	20	12	5	15	9	19	33	21	8	10	16
June.....	10	8	3	18	18	7	23	13	11	10	12
July.....	15	11	8	11	13	10	21	11	17	5	12
August.....	20	12	19	24	13	25	37	21	10	19	20
September.....	35	32	26	28	32	68	44	28	23	40	35
October.....	36	43	35	52	78	107	59	39	43	66	55
November.....	37	47	57	79	54	106	76	52	47	69	62
December.....	34	44	55	46	47	78	51	57	45	64	52
Totals.....	353	315	338	381	374	518	516	385	302	386	386

### DIPHTHERIA.

*Deaths by Ages with Average for Past Ten Years.*

AGES	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
Under 1 year.....	20	21	21	28	21	23	26	27	13	19	21
1 to 2 years.....	34	43	31	44	35	61	47	42	30	41	40
2 to 3 years.....	35	54	52	43	53	63	53	55	33	45	48
3 to 4 years.....	51	36	46	42	49	55	61	35	34	46	45
4 to 5 years.....	30	23	40	43	51	52	44	35	25	37	38
5 to 9 years.....	127	90	117	119	110	167	170	135	104	119	125
10 to 14 years.....	32	23	28	35	34	52	67	35	36	43	38
15 to 19 years.....	7	9	7	14	7	11	20	9	13	13	11
20 to 24 years.....	8	3	5	4	3	14	6	1	3	9	5
25 to 29 years.....	3	3	...	4	2	7	3	2	1	5	3
30 to 34 years.....	1	4	1	1	3	7	5	3	4	3	3
35 to 39 years.....	2	3	1	1	1	3	5	1	1	4	2
40 to 44 years.....	2	...	...	1	...	2	2	...	...	...	...
45 to 49 years.....	1	...	...	...	...	...	...	...	3	...	...
50 to 54 years.....	...	...	...	1	...	...	1	1	...	...	...
55 to 59 years.....	1	1	...	...	...	...	1	1	1	...	...
60 to 64 years.....	...	1	...	1	...	...	1	1	...	...	...
65 to 69 years.....	...	...	...	...	2	...	...	...	...	2	...
70 to 79 years.....	...	...	...	...	...	1	4	3	1	...	...

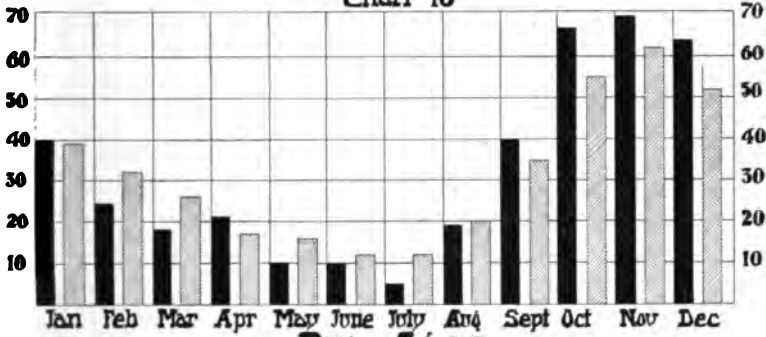


# INDIANA DIPHTHERIA DEATHS

■ 1916

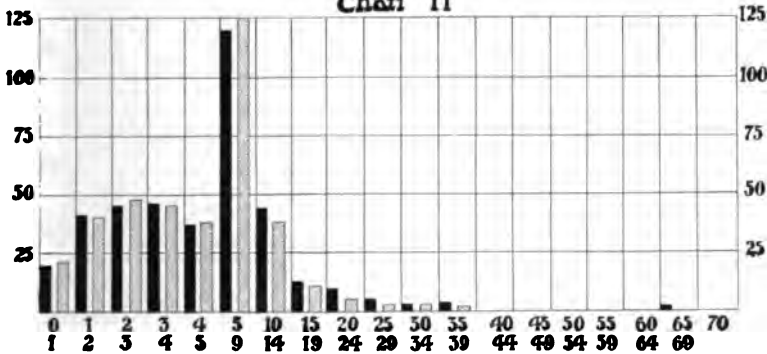
By Months *Average for last years*

Chart 10



By Ages

Chart 11



## MONTHLY ANALYSIS OF DIPHTHERIA DEATHS.

(As published in *Monthly Bulletin*.)

January, 1916.—240 cases in 46 counties with 40 deaths. In the preceding month, 317 cases in 49 counties with 45 deaths. In the same month last year, 300 cases in 47 counties with 33 deaths.

February, 1916.—125 cases in 39 counties with 25 deaths. In the preceding month, 200 cases in 46 counties with 40 deaths. In the same month last year, 251 cases in 41 counties with 30 deaths.

March, 1916.—150 cases in 37 counties with 17 deaths. In the preceding month, 125 cases in 39 counties with 25 deaths. In the same month last year, 187 cases in 40 counties with 20 deaths.

April, 1916.—141 cases in 36 counties with 20 deaths. In the preceding month, 150 cases in 37 counties with 17 deaths. In the same month last year, 126 cases in 27 counties with 14 deaths.

May, 1916.—106 cases in 30 counties with 9 deaths. In the preceding month, 141 cases in 36 counties with 20 deaths. In the same month last year, 104 cases in 36 counties with 9 deaths.

June, 1916.—99 cases in 27 counties with 10 deaths. In the preceding month, 106 cases in 30 counties with 9 deaths. In the same month last year, 71 cases in 22 counties with 11 deaths.

July, 1916.—81 cases reported in 28 counties with 5 deaths. In the preceding month, 99 cases in 21 counties with 10 deaths. In the same month last year, 101 cases in 26 counties with 17 deaths.

August, 1916.—155 cases in 32 counties with 18 deaths. In the preceding month, 81 cases reported in 28 counties with 5 deaths. In the same month last year, 124 cases in 31 counties with 8 deaths.

September, 1916.—318 cases in 44 counties with 37 deaths. In the preceding month, 155 cases in 32 counties with 18 deaths. In the same month last year, 269 cases in 43 counties with 24 deaths.

October, 1916.—617 cases reported in 52 counties with 69 deaths. In the preceding month, 318 cases in 44 counties with 37 deaths. In the same month last year, 543 cases in 60 counties with 43 deaths.

November, 1916.—673 cases in 54 counties with 67 deaths. In the preceding month, 617 cases in 52 counties with 69 deaths. In the same month last year, 553 cases in 61 counties with 43 deaths.

December, 1916.—485 cases reported in 55 counties with 62 deaths. In the preceding month, 673 cases in 54 counties, with 67 deaths. In the same month last year, 317 cases in 49 counties with 45 deaths.

## SCARLET FEVER.

*Deaths by Months with Average for Past Ten Years.*

MONTHS	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
January.....	6	13	11	16	26	7	15	18	14	13	13
February.....	9	17	11	33	19	14	22	7	10	14	15
March.....	18	10	7	26	33	7	36	10	19	11	16
April.....	9	15	11	21	23	15	26	21	15	14	17
May.....	5	5	14	21	17	4	21	4	4	7	10
June.....	3	5	9	13	12	4	18	5	2	4	7
July.....	10	4	9	11	5	4	5	4	1	1	5
August.....	5	1	6	11	4	5	7		2	1	4
September.....	3	6	8	8	10	5	8	6	3	9	6
October.....	7	4	21	11	7	10	13	9	7	4	9
November.....	8	5	19	21	5	14	13	9	12	7	11
December.....	7	10	25	13	11	24	15	21	13	11	15
Totals.....	91	94	151	205	179	113	199	114	102	96	134

## SCARLET FEVER.

Deaths by Ages with Average for Past Ten Years.

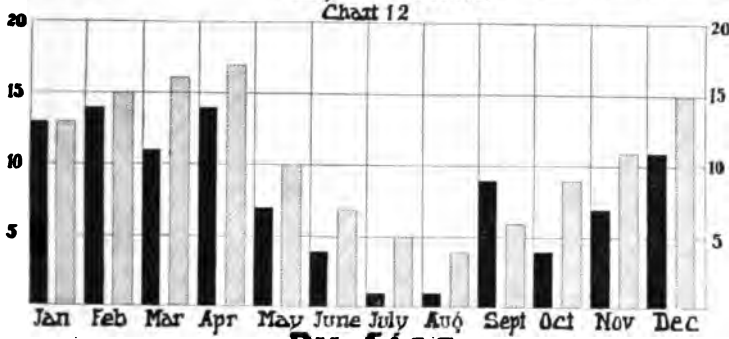
AGES	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
Under 1 year.	4	4	9	13	7	5	7	4	9	9	7
1 to 2 years.	7	8	22	24	13	14	12	15	13	9	13
2 to 3 years.	15	17	15	21	24	12	19	15	8	10	15
3 to 4 years.	13	12	20	23	14	16	21	7	16	13	15
4 to 5 years.	7	10	15	19	16	10	13	9	6	6	11
5 to 9 years.	31	22	53	61	66	29	68	49	29	27	42
10 to 14 years.	8	9	11	20	18	11	29	10	12	8	13
15 to 19 years.	5	5	3	10	10	5	13	5	4	6	6
20 to 24 years.		2	1	7	5	2	6		2	2	2
25 to 29 years.	1	4		4	2	6	5	5		2	2
30 to 34 years.		2	1		3	1	2	1	1	3	1
35 to 44 years.			1	1	1	1	3	3	1	1	1
45 to 54 years.						1	1		1		
55 to 90 years.			2						1		

# INDIANA SCARLET FEVER DEATHS

■ 1916

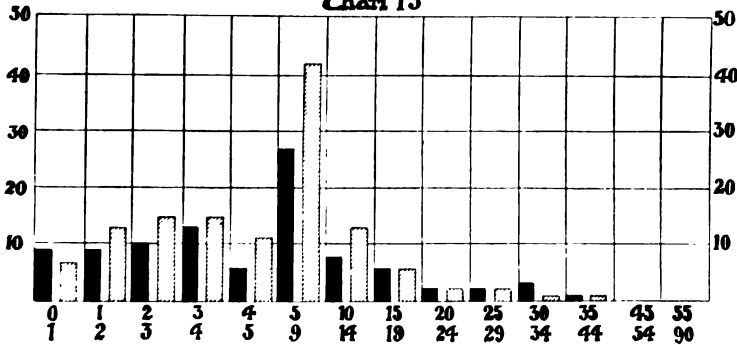
By Months

— Average for last ten yrs



By Ages

Chart 13



## MONTHLY ANALYSIS OF SCARLET FEVER.

(As appears in *Monthly Bulletin*.)

January, 1916.—363 cases in 56 counties with 11 deaths. In the preceding month, 399 cases in 57 counties with 13 deaths. In the same month last year, 792 cases in 59 counties with 15 deaths.

February, 1916.—406 cases in 55 counties with 13 deaths. In the preceding month, 363 cases in 56 counties with 11 deaths. In the same month last year, 524 cases in 53 counties with 7 deaths.

March, 1916.—362 cases in 52 counties with 10 deaths. In the preceding month, 406 cases in 55 counties with 13 deaths. In the same month last year, 381 cases in 61 counties with 18 deaths.

April, 1916.—325 cases in 40 counties with 13 deaths. In the preceding month, 362 cases in 52 counties with 10 deaths. In the same month last year, 294 cases in 50 counties with 13 deaths.

May, 1916.—219 cases in 40 counties with 7 deaths. In the preceding month, 325 cases in 40 counties with 13 deaths. In the same month last year, 226 cases in 42 counties with 4 deaths.

June, 1916.—140 cases in 28 counties with 4 deaths. In the preceding month, 219 cases in 40 counties with 7 deaths. In the same month last year, 136 cases in 34 counties with 1 death.

July, 1916.—114 cases in 27 counties with 1 death. In the preceding month, 140 cases in 28 counties with 4 deaths. In the same month last year, 112 cases in 29 counties with 1 death.

August, 1916.—74 cases in 25 counties with 2 deaths. In the preceding month, 114 cases reported in 27 counties with 1 death. In the same month last year, 124 cases in 34 counties with 1 death.

September, 1916.—212 cases in 35 counties with 9 deaths. In the preceding month, 74 cases in 25 counties with 2 deaths. In the same month last year, 212 cases in 41 counties with 3 deaths.

October, 1916.—410 cases in 54 counties with 5 deaths. In the preceding month, 212 cases in 35 counties with 9 deaths. In the same month last year, 364 cases in 55 counties with 7 deaths.

November, 1916.—513 cases in 61 counties with 7 deaths. In the preceding month, 410 cases in 54 counties with 5 deaths. In the same month last year, 501 cases in 68 counties with 10 deaths.

December, 1916.—507 cases in 63 counties with 10 deaths.  
**In** the preceding month, 513 cases in 61 counties with 7 deaths.  
**In** the same month last year, 399 cases in 57 counties with 13 deaths.

**DIARRHOEAL DISEASES.**

(UNDER TWO YEARS OF AGE.)

*Deaths by Months with Average for Past Ten Years.*

MONTHS	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
January.....	34	39	34	45	54	50	42	59	50	57	46
February.....	34	33	46	30	42	45	38	42	45	57	41
March.....	35	34	57	39	52	50	61	54	54	71	50
April.....	18	48	39	45	52	53	63	58	61	73	51
May.....	35	39	34	63	57	45	50	76	51	71	52
June.....	81	89	165	128	141	57	104	91	51	82	98
July.....	396	322	460	491	357	272	339	279	141	274	333
August.....	503	420	441	528	285	376	426	320	198	351	384
September.....	289	292	304	356	260	360	229	295	220	331	292
October.....	160	204	146	203	208	218	249	223	151	191	195
November.....	40	83	50	72	75	68	84	89	77	75	71
December.....	25	32	53	49	46	34	47	41	57	46	43
Totals.....	1,639	1,635	1,841	2,049	1,629	1,625	1,832	1,627	1,156	1,679	1,671

**DIARRHOEAL DISEASES.**

(TWO YEARS OF AGE AND OVER.)

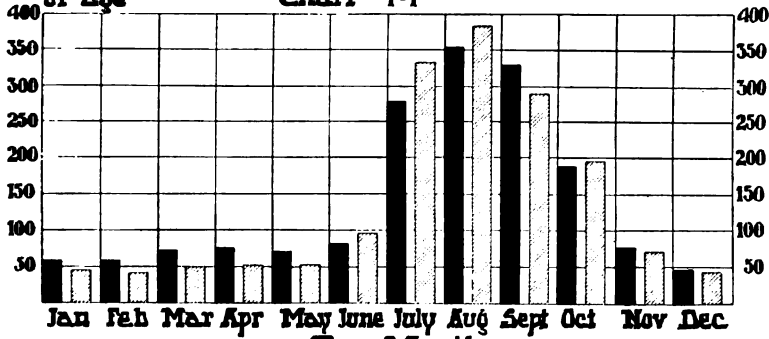
*Deaths by Months with Average for Past Ten Years.*

MONTHS	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
January.....	40	38	30	36	20	25	22	33	22	21	28
February.....	33	26	28	20	27	34	19	22	14	19	24
March.....	41	35	37	28	29	35	25	24	21	24	29
April.....	38	28	22	24	32	27	18	29	27	18	26
May.....	29	43	38	29	23	29	25	21	17	21	27
June.....	63	57	46	34	35	29	48	29	20	24	38
July.....	150	116	35	99	66	66	76	63	38	78	78
August.....	203	165	105	146	70	112	108	84	62	75	113
September.....	122	143	76	83	51	102	68	61	59	90	85
October.....	62	88	34	62	48	56	51	41	49	42	53
November.....	42	50	35	28	31	30	31	30	24	25	32
December.....	24	28	27	31	40	21	15	23	30	16	25
Totals.....	847	817	563	620	492	566	506	460	385	453	570

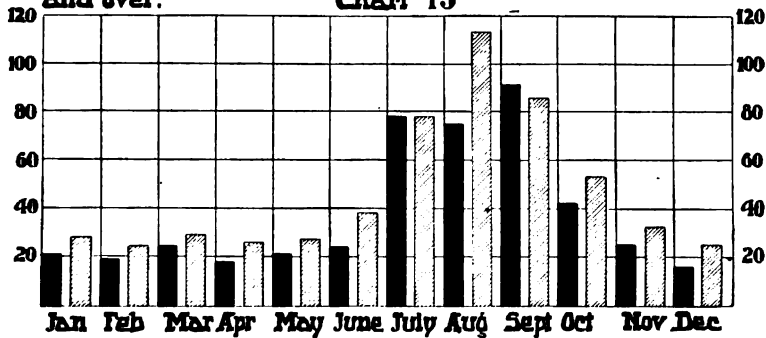


# INDIANA DIARRHEAL DISEASES

■ 1916      By Months      ▨ Average for last ten yrs  
Under two years of age      Chart 14



Two years and over.      By Months      Chart 15



## DIARRHOEAL DISEASE.

*Deaths by Ages with Average for Past Ten Years.*

AGES	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
Under 1 year.....	1,202	1,202	1,340	1,576	1,260	1,219	1,437	1,200	839	1,284	1,255
1 to 2 years.....	437	433	501	473	369	406	395	427	317	395	415
2 to 3 years.....	105	126	125	140	82	134	100	133	74	111	113
3 to 4 years.....	33	34	25	37	22	28	38	20	25	38	30
4 to 5 years.....	11	16	18	13	13	12	18	6	12	11	14
5 to 9 years.....	19	16	19	22	23	19	18	17	11	25	18
10 to 14 years.....	12	6	7	9	4	11	6	10	6	6	7
15 to 19 years.....	4	3	5	9	4	2	8	2	1	4	4
20 to 24 years.....	16	14	8	8	9	10	8	6	6	3	8
25 to 29 years.....	7	14	11	3	6	7	7	6	4	6	7
30 to 34 years.....	10	11	14	7	11	11	7	10	7	3	9
35 to 39 years.....	20	13	11	10	13	6	15	9	7	9	11
40 to 44 years.....	13	12	20	11	11	9	12	15	10	5	11
45 to 49 years.....	13	19	17	15	14	19	7	11	9	12	13
50 to 54 years.....	30	20	29	19	19	14	18	10	12	9	18
55 to 59 years.....	35	46	19	16	21	25	16	19	14	17	22
60 to 64 years.....	61	45	42	37	34	27	25	16	18	14	31
65 to 69 years.....	78	78	98	50	37	38	32	25	27	18	48
70 to 74 years.....	97	81	92	61	45	54	38	32	45	35	58
75 to 79 years.....	117	103	132	66	43	62	43	42	29	37	67
80 to 90 years.....	141	132	148	66	71	62	83	58	59	68	89
90 years and over.....	20	22	33	17	10	16	8	13	7	22	16

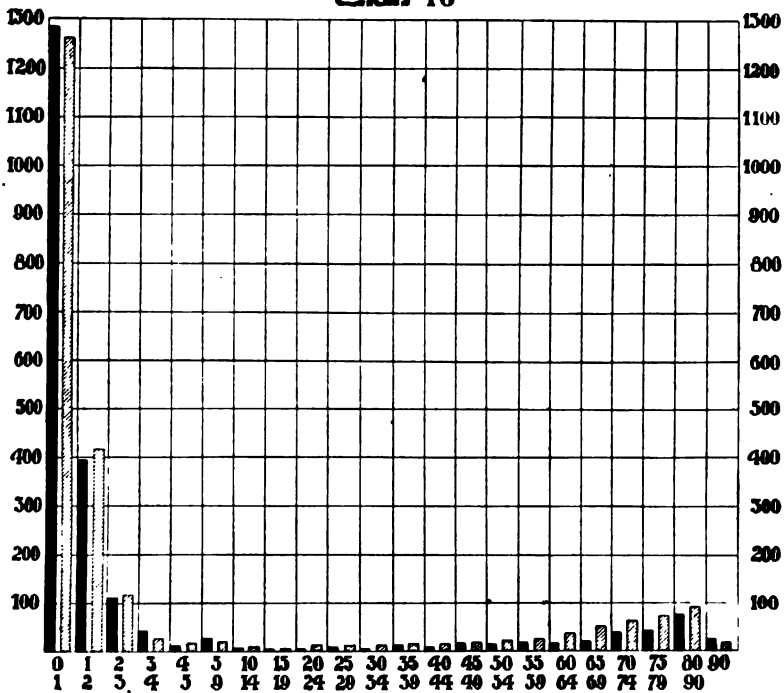
# INDIANA DIARRHEAL DISEASES

■ 1916

By Ages

▨ Average for last ten yrs

Chart 16



## INFLUENZA.

*Deaths by Months with Average for Past Ten Years.*

MONTHS	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
January.....	71	172	54	88	197	72	143	47	55	432	133
February.....	159	316	77	144	172	98	68	51	123	236	144
March.....	234	167	126	201	154	74	83	71	137	131	137
April.....	51	70	135	97	90	46	39	57	76	55	71
May.....	52	40	42	36	19	9	20	28	23	28	29
June.....	14	13	9	10	3	7	6	2	6	17	8
July.....	7	9	9	12	1	6	4	3	3	7	6
August.....	4	14	4	4	4	1	3	1	1	3	3
September.....	4	5	7	3	.....	6	3	3	1	7	3
October.....	2	4	4	10	7	11	5	2	6	4	5
November.....	17	22	10	22	23	18	15	6	10	23	16
December.....	51	35	27	75	37	73	17	21	68	25	42
Totals.....	224	666	867	504	701	659	406	292	509	968	579

## INFLUENZA.

*Deaths by Ages with Average for Past Ten Years.*

AGES	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Av.
Under 1 year.....	26	32	44	46	42	33	21	19	40	49	35
1 to 2 years.....	12	11	11	18	15	10	10	9	7	19	12
2 to 3 years.....	5	10	5	14	8	7	8	1	7	9	7
3 to 4 years.....	3	6	4	3	7	2	1	1	3	7	3
4 to 5 years.....	.....	1	2	4	2	4	1	.....	4	1	1
5 to 9 years.....	4	10	2	9	10	9	5	5	12	13	7
10 to 14 years.....	6	10	9	6	4	3	4	4	4	11	6
15 to 19 years.....	11	16	7	9	15	7	4	4	9	8	9
20 to 24 years.....	11	13	6	14	16	8	7	9	8	15	10
25 to 29 years.....	6	11	9	16	8	7	5	9	4	12	8
30 to 34 years.....	18	15	.....	16	18	7	5	4	9	15	10
35 to 39 years.....	14	24	9	15	22	9	6	4	10	18	13
40 to 44 years.....	9	21	10	22	17	8	13	5	9	20	13
45 to 49 years.....	23	30	8	23	22	7	5	5	13	16	15
50 to 54 years.....	26	37	14	26	23	22	14	11	16	22	21
55 to 59 years.....	38	34	35	38	36	14	25	18	26	42	30
60 to 64 years.....	24	50	29	34	41	24	19	21	31	58	33
65 to 69 years.....	73	86	46	69	59	45	34	26	49	84	57
70 to 74 years.....	94	115	52	87	74	34	48	30	64	148	74
75 to 79 years.....	89	131	80	96	72	52	64	44	61	167	85
80 to 90 years.....	151	182	103	122	130	85	84	58	103	201	121
90 years and over.....	23	21	15	19	18	23	21	5	20	33	19

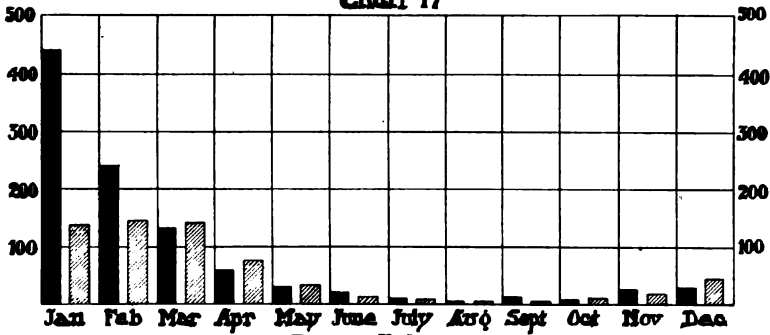
# INDIANA INFLUENZA DEATHS

■ 1916

By Months

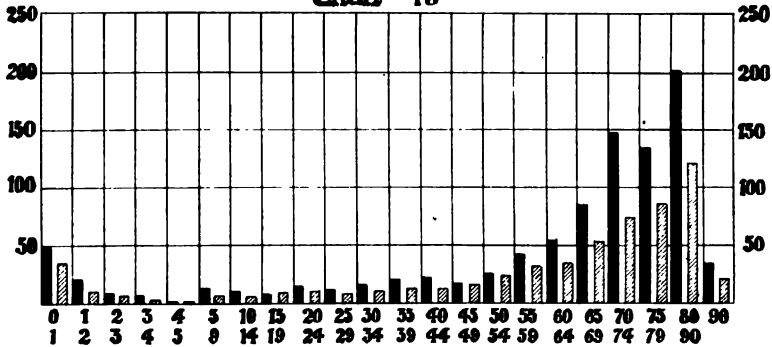
Average for last ten yrs

Chart 17



By Ages

Chart 18





# INDIANA MEASLES DEATHS

■ 1916


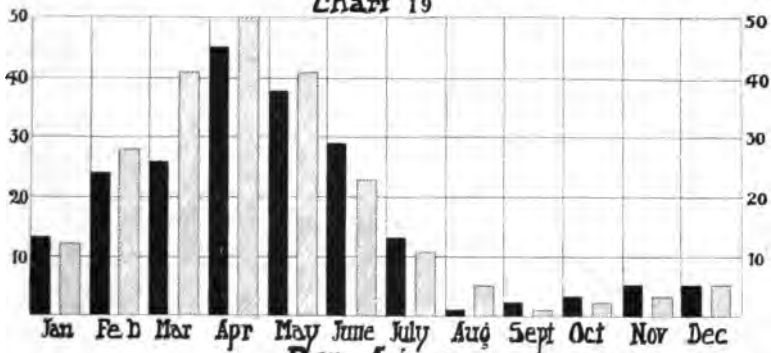
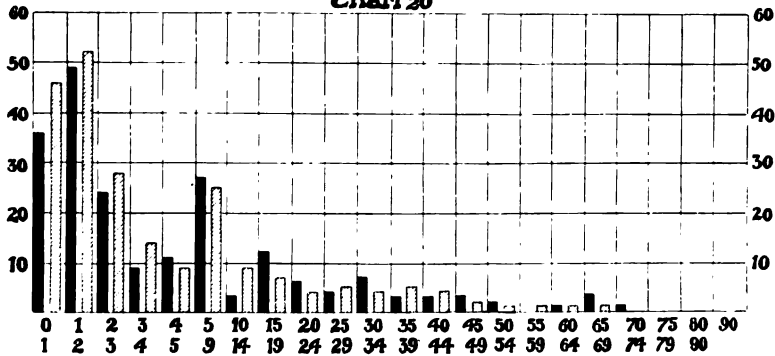
By Months  Average for last ten yrs

Chart 19



By Ages

Chart 20



## MONTHLY ANALYSIS OF MEASLES.

*(As appears in Monthly Bulletin.)*

January, 1916.—817 cases in 39 counties with 12 deaths. In the preceding month, 891 cases in 28 counties with 10 deaths. In the same month last year, 316 cases in 27 counties with 3 deaths.

February, 1916.—1,712 cases in 45 counties with 21 deaths. In the preceding month, 817 cases in 39 counties with 12 deaths. In the same month last year, 831 cases in 37 counties with 5 deaths.

March, 1916.—3,456 cases in 55 counties with 25 deaths. In the preceding month, 1,712 cases in 45 counties, with 21 deaths. In the same month last year, 992 cases in 41 counties with 7 deaths.

April, 1916.—4,464 cases in 65 counties with 44 deaths. In the preceding month, 3,456 cases in 55 counties with 25 deaths. In the same month last year, 1,913 cases in 53 counties with 14 deaths.

May, 1916.—5,035 cases in 72 counties with 37 deaths. In the preceding month, 4,464 cases in 65 counties with 44 deaths. In the same month last year, 954 cases in 46 counties with 14 deaths.

June, 1916.—4,044 cases in 60 counties with 27 deaths. In the preceding month, 5,035 cases in 72 counties with 37 deaths. In the same month last year, 879 cases in 37 counties with 8 deaths.

July, 1916.—781 cases reported in 48 counties with 13 deaths. In the preceding month, 4,044 cases in 60 counties with 27 deaths. In the same month last year, 330 cases in 23 counties with 3 deaths.

August, 1916.—134 cases reported in 28 counties with 1 death. In the preceding month, 781 cases reported in 48 counties with 13 deaths. In the same month last year, 54 cases in 16 counties with 1 death.

September, 1916.—69 cases in 20 counties with 2 deaths. In the preceding month, 134 cases in 28 counties with 1 death. In the same month last year, 52 cases in 15 counties with no deaths.

October, 1916.—252 cases reported in 21 counties with 3 deaths. In the preceding month 69 cases in 20 counties with 2 deaths. In the same month last year 167 cases in 16 counties with 2 deaths.



November, 1916.—744 cases in 35 counties with 5 deaths. In the preceding month, 252 cases in 21 counties with 3 deaths. In the same month last year, 543 cases in 29 counties with 6 deaths.

December, 1916.—1,258 cases in 52 counties with 5 deaths. In the preceding month, 744 cases in 35 counties with 5 deaths. In the same month last year, 891 cases in 28 counties with 10 deaths.

## SMALLPOX.

Table Giving Number of Deaths by Months for the Past Ten Years.

MONTHS	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Total	Av.
January.....	3						1	1	1		6	
February.....	2	1		1		2			1		7	
March.....		2			2	3	1		1	1	10	1
April.....	1	2	1			2		1	3		10	1
May.....			3					1	1		6	
June.....	1	3			1	3	1	1			10	1
July.....			2				1				3	
August.....							1	1	2		4	
September.....												
October.....						1	3				4	
November.....			1				3	1			5	
December.....		2				1		2	1		6	
Totals.....	8	10	7	1	3	12	11	8	10	1	71	7

## MONTHLY ANALYSIS OF SMALLPOX DEATHS:

*(As published in Monthly Bulletin.)*

January, 1916.—104 cases in 14 counties with no deaths. The following counties reported smallpox present: Bartholomew 2 cases, Delaware 1, Gibson 6, Jackson 6, Jennings 8, Knox 11, Lake 4, Laporte 1, Miami 5, Newton 2, Porter 3, Vanderburg 53, Wabash 2.

February, 1916.—114 cases in 17 counties with no deaths. In the preceding month, 104 cases in 14 counties with no deaths. The following counties reported smallpox present: Adams 7, Allen 3, Bartholomew 1, Delaware 2, Fountain 5, Gibson 7, Jasper 20, Knox 5, Kosciusko 1, Marshall 1, Miami 3, Newton 1, Parke 20, Pike 4, Vanderburg 31, Vermillion 2, Warren 1.

March, 1916.—136 cases in 20 counties with 1 death. The following counties reported smallpox present: Adams 1 case, Benton 1, Carroll 1, Clinton 1, Dekalb 1, Fountain 10, Knox 4, Lake 1, Laporte 23, Morgan 1, Parke 8, Pike 10, Posey 3, Pulaski 5, Starke 1, Vanderburg 30, Vermillion 27, Vigo 1, Warren 6, Washington 1 case and 1 death, female 30 years.

April, 1916.—60 cases in 14 counties with no deaths. The following counties reported smallpox present: Boone 8, Dekalb 5, Gibson 11, Jasper 2, Knox 5, Kosciusko 1, Laporte 3, Marion 7, Pike 3, Spencer 4, Tippecanoe 3, Vanderburg 2, Vermillion 1, Warrick 2, White 3.

May, 1916.—69 cases in 14 counties with no deaths. The following counties reported smallpox present: Boone 5, Delaware 1, Elkhart 1, Gibson 2, Greene 2, Howard 6, Jasper 1, Madison 2, Marshall 1, Miami 16, Vanderburg 25, Vermillion 1, Vigo 5, Warren 1.

June, 1916.—162 cases reported in 21 counties with no deaths. The following counties reported smallpox present: Dekalb 2, Delaware 4, Hancock 6, Henry 2, Howard 3, Johnson 3, Lake 2, Madison 2, Marion 1, Miami 10, Parke 12, St. Joseph 8, Vanderburg 2, Vermillion 4, Vigo 2, Wabash 2.

July, 1916.—81 cases reported in 17 counties with no deaths. The following counties reported smallpox present: Dekalb 3, Delaware 1, Gibson 1, Grant 2, Greene 1, Harrison 7, Howard 29, Knox 8, Kosciusko 1, Laporte 2, Madison 3, Miami 10, Steuben 1, Tipton 1, Vanderburg 3, Vermillion 1, Vigo 7.

August, 1916.—29 cases reported from 8 counties with no deaths. The counties reporting smallpox present were: Dekalb 3, Knox 1, Kosciusko 3, Owen 10, St. Joseph 1, Tipton 8, Vanderburg 2, Vigo 1.

September, 1916.—23 cases reported from 5 counties and no deaths. The counties reporting smallpox present were: Delaware 6, Johnson 1, Morgan 1, Tipton 14, Warren 1.

October, 1916.—38 cases reported in 10 counties with no deaths. The counties reporting smallpox present were: Dubois 2, Grant 1, Jay 1, Johnson 1, Knox 6, Lake 1, Randolph 11, Tipton 10, Union 2, Vigo 3.

November, 1916.—167 cases in 14 counties with no deaths. The counties reporting smallpox present were: Boone 1 case, Elkhart 5, Fountain 20, Hamilton 2, Jay 61, Lake 9, Madison 1, Marion 10, Randolph 7, St. Joseph 1, Tipton 42, Vermillion 1, Vigo 2 and Warren 5.

December, 1916.—174 cases in 21 counties with no deaths. The following counties reported smallpox present: Clark 9, Floyd 1, Hamilton 25, Jay 28, Knox 6, Lake 8, Madison 1, Marion 15, Miami 1, Posey 7, Randolph 2, St. Joseph 2, Switzerland 1, Tippecanoe 1, Tipton 31, Vanderburg 11, Vermillion 2, Vigo 46, Warren 4, Warrick 2, Wayne 1.

## EXTERNAL CAUSES

*Affections Produced by External Causes for Past Seven Years.*

YEARS	1910	1911	1912	1913	1914	1915	1916
Suicides by Poisonings.....	170	171	222	203	226	147	180
Suicides by Asphyxia.....	6	12	18	18	14	13	12
Suicides by Hanging or Strangulation.....	64	78	63	47	60	64	69
Suicides by Drowning.....	22	45	18	30	27	26	28
Suicides by Firearms.....	95	45	101	114	121	130	155
Suicides by Cutting or Piercing Instruments.....	11	19	26	20	23	23	25
Suicides from Jumping from High Places.....	3	4	1	2	1	4	5
Suicides by Crushing.....	11	7	6	4	5	9	4
Other Suicides.....	4	3	3	3	1	9	6
Poisoning by Food.....	11	19	47	43	39	26	27
Other Acute Poisoning.....	67	69	68	74	82	45	44
Conflagration.....	14	12	15	19	31	33	21
Burns (Conflagration excepted).....	169	202	184	173	148	152	139
Absorption of Deleterious Gases (Conflagration Excepted).....	29	47	80	68	74	54	76
Accidental Drowning.....	144	183	185	275	162	148	186
Traumatism by Firearms.....	70	68	59	85	63	72	69
Traumatism by Cutting or Piercing Instruments.....	8	28	17	25	15	21	14
Traumatism by Fall.....	414	441	452	465	434	467	464
Traumatism in Mines and Quarries.....	63	50	43	68	50	56	56
Traumatism by Machines.....	59	43	57	65	50	49	48
Railroad Accidents and Injuries.....	433	423	445	493	354	335	463
Street Car Accidents and Injuries.....	137	79	87	95	89	71	95
Automobile and Other Vehicles.....	82						
Automobile Accidents.....		33	48	83	90	125	167
Injuries by bicycles.....						1	2
Injuries by Motorcycles.....						9	17
Injuries by other Vehicles.....		46	68	82	93	84	64
Other Crushings.....	87	98	60	47	66	37	14
Injuries by Animals.....	71	85	50	44	45	31	36
Starvation.....		1	2			1	
Excessive Cold.....	17	13	11	4	14	7	17
Effects of Heat.....	25	82	18	96	64	10	96
Lightning.....	23	21	15	31	18	13	20
Electricity (Lightning excepted).....	32	21	38	40	31	23	33
Homicides by Firearms.....	79	92	86	108	123	107	96
Homicides by Cutting or Piercing Instruments.....	12	12	14	15	19	15	17
Homicides by Other Means.....	30	19	31	29	36	27	30
Fractures (Causes not Specified).....	9	7	3	2	2	2	1
Other External Violence.....	82	81	105	76	78	100	101
Total Deaths by External Causes.....	2,553	2,650	2,746	3,046	2,748	2,546	2,897

## EXTERNAL CAUSES

MONTHS	1908	1909	1910	1911	1912	1913	1914	1915	1916
January.....	212	198	197	214	185	187	196	194	207
February.....	172	185	179	180	183	176	187	193	178
March.....	174	215	263	165	205	269	225	203	192
April.....	186	197	200	199	196	232	198	203	201
May.....	242	195	188	267	204	219	228	205	231
June.....	223	217	243	221	218	325	274	196	250
July.....	234	228	273	325	267	361	280	266	383
August.....	251	266	251	278	253	347	270	233	324
September.....	244	205	241	219	231	256	228	240	259
October.....	209	220	207	226	225	221	260	185	233
November.....	196	200	214	226	235	239	220	200	214
December.....	184	221	234	215	226	214	192	228	225
Totals.....	2,527	2,543	2,690	2,735	2,638	3,046	2,748	2,546	2,897
	1908	1909	1910	1911	1912	1913	1914	1915	1916
Accidents or undefined.....	2,021	2,030	1,902	2,081	2,049	2,453	2,092	1,972	2,270
Suicides.....	384	404	386	443	458	441	478	425	484
Homicides.....	122	109	121	123	131	152	178	149	143

## MONTHLY RECORD OF DEATHS FROM EXTERNAL CAUSES.

(As published in *Monthly Bulletin*.)

January, 1916.—Total 189, males 129, females 60. *Suicide*: Total 42, males 29, females 13. Suicides by poison 14, by hanging or strangulation 6, by drowning 4, by firearms 14, by cutting or piercing instruments 3, by jumping from high places 1. *Accidental or Undefined*: Total 140, males 95, females 45. Poisoning by food 2, other acute poisonings 1, conflagration 3, burns (conflagration excepted) 11, absorption of deleterious gases (conflagration excepted) 10, accidental drowning 6, traumatism by fire arms 7, traumatism by cutting or piercing instruments 1, traumatism by fall 37, traumatism in mines 5, traumatism by machines 2, railroad accidents and injuries 34, street car accidents and injuries 4, automobile accidents and injuries 4, motorcycle accidents and injuries 1, injuries by other vehicles 3, injuries by animals 4, excessive cold 1, other external violence 4. *Homocide*: Total 7, males 5, females 2. Homicide by firearms 5, by cutting or piercing instruments 2.

February, 1916.—Total 183, males 131, females 52. *Suicide*: Total 38, males 29, females 9. Suicides by poison 17, suicide by hanging or strangulation 5, by firearms 11, by piercing or cutting instruments 2, other means 3. *Accidental or Undefined*: Total

138, males 96, females 42. Poisoning by food 3, other acute poisoning 5, conflagration 2, burns (conflagration excepted) 12, absorption of deleterious gases (conflagration excepted) 8, accidental drowning 4, traumatism by firearms 5, traumatism by cutting or piercing instruments 1, traumatism by falls 46, traumatism in mines 5, traumatism by machines 1, railroad accidents and injuries 22, street car accidents and injuries 4, automobile accidents and injuries 4, injuries by other vehicles 3, other crushing 5, injuries by animals 2, fractures (causes not specified) 4, other external violence 2. *Homicides*: Total 7, males 6, females 1. By firearms 6, by cutting or piercing instruments 1.

March, 1916.—Total 185, males 134, females 51. *Suicide*: Total 38, males 29, females 9. Suicide by poison 14, by asphyxia 1, by hanging or strangulation 8, by drowning 1, by firearms 11, by cutting or piercing instruments 3. *Accidental or Undefined*: Total 132, males 90, females 42. Poisoning by food 5, other acute poisonings 2, conflagration 3, burns (conflagration excepted) 12, absorption of deleterious gases (conflagration excepted) 6, accidental drowning 1, traumatism by firearms 3, traumatism by cutting or piercing instruments 1, traumatism by fall 38, traumatism in mines 3, traumatism in quarries 1, traumatism by machines 3, railroad accidents and injuries 20, street car accidents and injuries 2, automobile accidents and injuries 7, motorcycle accidents and injuries 1, injuries by other vehicles 4, other crushing 2, excessive cold 6, electricity (lightning excepted) 1, other external violence 11. *Homicide*: Total 15, males 15, females 0. Homicide by firearms 10, by cutting or piercing instruments 1, by other means 4.

April, 1916.—Total 194, males 141, females 53. *Suicide*: Total 47, males 34, females 13. Suicide by poison 24, by asphyxia 1, by hanging or strangulation 5, by drowning 3, by firearms 11, by cutting or piercing instruments 1, by jumping from high places 2. *Accidental or undefined*: Total 128, males 94, females 34. Poisoning by food 1, other acute poisonings 2, conflagration 1, burns (conflagration excepted) 11, absorption of deleterious gases 1, accidental drowning 8, traumatism by firearms 2, traumatism by cutting or piercing instruments 2, traumatism by fall 25, traumatism in mines 2, traumatism by machines 4, railroad accidents and injuries 32, street car accidents and injuries 2, automobile accidents and injuries 11, injuries by other vehicles 3, other crushing 2, injured by animals 4, excessive cold 1, electricity (lightning excepted) 2, fractures (cause not specified) 3, other external violence, 9. *Homicide*: Total 19, males 13, females 6.

Homicide by firearms 11, by cutting or piercing instruments 2, by other means 6.

May, 1916.—Total 227, males 165, females 62. *Suicide*: Total 47, males 34, females 13. Suicide by poison 15, asphyxia 1, by hanging or strangulation 7, by drowning 4, by firearms 13, by cutting or piercing instruments 5, by jumping from high places 1, other suicides 1. *Accidental or Undefined*: Total 171, males 127, females 44. Acute poisoning 8, conflagration 1, burns (conflagration excepted) 12, absorption of deleterious gases (conflagration excepted) 6, accidental drowning 30, traumatism by firearms 4, traumatism by cutting or piercing instruments 2, traumatism by fall 31, traumatism in mines 2, traumatism by machines 3, railroad accidents and injuries 29, street car accidents and injuries 9, automobile accidents and injuries 13, motorcycle accidents and injuries 1, injuries by other vehicles 5, other crushing 1, lightning 1, electricity (lightning excepted) 3, other external violence 10. *Homicide*. Total 9, males 4, females 5. Homicide by firearms 6, by cutting or piercing instruments 1, by other means 2.

(One accidental drowning in Clay County. Certificate not received in time to be included in general death table.)

June, 1916.—Total 245, males 179, females 66. *Suicide*. Total 36, males 24, females 12. Suicide by poison 12, by hanging or strangulation 8, by drowning 1, by firearms 13, by cutting or piercing instruments 2. *Accidental or Undefined*: Total 198, males 146, females 52. Poisoning by food 6, other acute poisoning 5, burns (conflagration excepted) 7, absorption of deleterious gases (conflagration excepted) 7, accidental drowning 20, traumatism by firearms 5, traumatism by cutting or piercing instruments 3, traumatism by fall 39, traumatism in mines 2, traumatism by machines 2, railroad accidents and injuries 33, street car accidents and injuries 5, automobile accidents and injuries 18, bicycle accidents and injuries 1, motorcycle accidents and injuries 2, injuries by other vehicles 7, injuries by animals 7, effects of heat 5, lightning 4, electricity (lightning excepted) 7, fractures (cause not specified) 3, other external violence 10. *Homicide*: Total 11, males 9, females 2. Homicide by firearms 8, by cutting or piercing instruments 1, by other means 2.

(Three external causes not received in time to be used in general tabulation.)

July, 1916.—Total 381, males 291, females 90. *Suicide*: Total 40, males 29, females 11. Suicide by posion 14, by asphyxia 1, by hanging or strangulation 5, by drowning 4, by firearms 12, by cutting or piercing instruments 2, by jumping from high places 1, other suicides, 1. *Accidental or Undefined*: Total 328, males 255, females 73. Poisoning by food 2, other acute poisonings 5, conflagration 3, burns (conflagration excepted) 15, absroption of deleterious gases (conflagration excepted) 5, accidental drowning 54, traumatism by firearms 8, traumatism by cutting or piercing instruments 2, traumatism by fall 41, traumatism in mines 6, traumatism by machines 3, railroad accidents and injuries 54, street car accidents and injuries 9, automobiles accident and injuries 17, motorcycle accidents and injuries 3, injuries by other vehicles 11, injuries by animals 2, effects of heat 61, lightning 8, electricity (lightning excepted) 6, fracture (cause not specified) 7, other external violence 6. *Homicide*: Total 13, males 7, females 6. Homicide by firearms 9, by cutting or piercing instruments 3, by other means 1.

August, 1916.—Total 311, males 254, females 57. *Suicide*: Total 46, males 34, females 12. Suicide by poison 18, by asphyxia 2, by hanging or strangulation 9 by drowning 2, by firearms 13, by cutting or piercing instruments 2. *Accidental or Undefined*: Total 256, males 212, females 44. Poisoning by food 4, other acute poisonings 2, burns (conflagration excepted) 9, absorption of deleterious gases (conflagration excepted) 6, accidental drowning 33, traumatism by firearms 3, traumatism by cutting or piercing instruments 1, traumatism by fall 33, traumatism in mines 7 traumatism by machines 6, railroad accidents and injuries 35, street car accidents and injuries 17, automobile accidents and injuries 29; motorcycle accidents and injuries 3, injuries by other vehicles 7, other crushing 2, injuries by animals 9, effects of heat 31, lightning 5, electricty (lightning excepted) 2, fractures (without specified cause) 3, other external violence 9. *Homicide*: Total 9, males 8, females 1. Homicide by firearms 9.

September, 1916.—Total 258, males 203, females 55. *Suicide*: Total 53, males 39, females 14. Suicide by poison 23, by asphyzia 1, by hanging or strangulation 5, by drowning 2, by firearms 19, by cutting or piercing instruments 2, other suicides 1. *Accidental or Undefined*: Total 193, males 153, females 40. Poisoning by food 1, other acute poisonings 4, burns (conflagration excepted) 9, absorption of deleterious gases (conflagration excepted) 6, accidental drowning 9, traumatism by firearms 3, traumatism by



cutting or piercing instruments 1, traumatism by fall 41, traumatism in mines 5, traumatism by machines 3, railroad accidents and injuries 39, street car accidents and injuries 9, automobile accidents and injuries 26, motorcycle accidents and injuries 6, bicycle accidents and injuries 1, injuries by other vehicles 2, other crushing 2, injuries by animals 3, effects of heat 1, lightning 1, electricity (lightning excepted) 5, fracture (cause not specified) 1, other external violence 15. *Homicide*: Total 12, males 11, females 1. Homicide by firearms 6, by cutting or piercing instruments 2, by other means 4.

October, 1916.—Total 214, males 161, females 53. *Suicide*: Total 24, males 19, females 5. Suicide by poison 9, by hanging or strangulation 4, by drowning 1, by firearms 9, by cutting or piercing instruments 1. *Accidental or Undefined*: Total 179, males 133, females 46. Other acute poisonings 1, conflagration 2, burns (conflagration excepted) 12, absorption of deleterious gases (conflagration excepted) 6, accidental drowning 3, traumatism by firearms 9, traumatism by falls 28, traumatism in mines 9, traumatism by machines 4, railroad accidents and injuries 62, street car accidents and injuries 12, automobile accidents and injuries 7, injuries by other vehicles 2, other crushing 1, injuries by animals 1, excessive cold 4, electricity (lightning excepted) 1, fractures (cause not specified) 6, other external violence 9. *Homicide*: Total 11, males 9, females 2. Homicide by firearms 9, by other means 2.

November 1916.—Total 210, males 162 females 48. *Suicide* Total 22, males 20, females 2. Suicide by poison 5, by asphyxia 1, by hanging or strangulation 5, by firearms 11. *Accidental or Undefined*: Total 179, males 136, females 43. Poisoning by food 2, other acute poisonings 3, conflagration 5, burns (conflagration excepted) 14, absorption of deleterious gases (conflagration excepted) 12, traumatism by firearms 9, traumatism by fall 42, traumatism in mines 8, traumatism by machines 8, railroad accidents and injuries 29, street car accidents and injuries 11 automobile accidents and injuries 14, motorcycle accidents and injuries 1, injuries by other vehicles 4, other crushing 2, injuries by animals 2, excessive cold 1, electricity (lightning excepted) 1, fracture (cause not specified) 2, other external violence 9. *Homicide*: Total 9, males 6, females 3. Homicide by firearms 4, by cutting or piercing instruments 2, by other means 3.

December, 1916.—Total 214, males 161, females 53. *Suicide*: Total 24, males 19, females 5. Suicide by poison 9, by hanging

or strangulation 4, by drowning 1, by firearms 9, by cutting or piercing instruments 1. *Accidental or Undefined*: Total 179, males 133, females 46. Other acute poisonings 1, conflagration 2, burns (conflagration excepted) 12, absorption of deleterious gases (conflagration excepted) 6, accidental drowning 3, traumatism by firearms 9, traumatism by falls 28, traumatism in mines 9, traumatism by machines 4, railroad accidents and injuries 62, street car accidents and injuries 12, automobile accidents and injuries 7, injuries by other vehicles 2, other crushing 1, injuries by animals 1, excessive cold 4, electricity (lightning excepted) 1, fractures (cause not specified) 6, other external violence 9. *Homicide*: Total 11, males 9, females 2. Homicide by firearms 9, by other means 2.

**CANCER.**

	1908	1909	1910	1911	1912	1913	1914	1915	1916
January.....	117	141	145	176	154	198	172	177	207
February.....	134	152	133	167	163	185	162	176	203
March.....	120	145	165	166	180	189	183	203	207
April.....	162	141	167	151	183	168	202	201	194
May.....	153	162	162	153	142	204	208	193	189
June.....	140	149	157	156	178	173	195	202	181
July.....	171	163	154	169	184	207	194	197	197
August.....	150	169	165	150	166	204	190	206	209
September.....	155	160	157	154	146	197	176	200	206
October.....	171	150	159	163	172	177	170	193	207
November.....	137	145	152	168	163	168	173	194	180
December.....	129	151	156	165	186	156	168	172	203
Totals.....	1,739	1,828	1,872	1,938	2,018	2,226	2,193	2,314	2,383

DEATHS FROM CANCER FOR TEN YEARS BY AGES, SEX AND RATE.

YEAR.	Population	Under 1 Year	1 Year	2 Years	3 Years	4 Years	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49
1907	2,714,744	1	1	1	1	1	5	1	5	7	8	27	42	103	154
1908	2,730,144	1	1	1	1	1	3	3	3	9	23	22	70	82	140
1909	2,733,550	4	3	1	1	1	6	3	6	10	18	35	70	101	144
1910	2,700,876	1	2	4	3	3	3	3	3	4	14	30	66	104	190
1911	2,700,876	1	2	2	3	3	3	3	3	10	22	39	66	123	150
1912	2,730,506	4	5	1	1	1	4	5	4	9	16	44	85	111	134
1913	2,769,710	1	1	1	1	1	1	2	2	11	24	56	86	111	174
1914	2,796,957	1	2	3	1	1	5	7	8	9	24	46	77	115	179
1915	2,824,327	4	3	1	1	1	7	2	5	12	22	44	75	115	156
1916	2,860,920	4	1	1	2	2	3	3	6	9	24	41	84	140	169

DEATHS FROM CANCER FOR TEN YEARS BY AGES, SEX AND RATE—Continued.

YEAR.	Population	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	85 to 95 and Over	Un- known	Total	Rate	Males	Females
1907	2,714,744	152	181	214	212	160	119	106	10	5	1,512	55.7	687	825
1908	2,730,144	189	236	252	240	198	149	105	9	1	1,739	63.6	755	984
1909	2,733,550	217	201	240	251	215	170	120	10	2	1,828	66.8	804	1,024
1910	2,700,876	189	213	254	222	205	180	101	43	1	1,837	68.0	722	1,115
1911	2,700,876	187	231	228	255	253	172	68	64	2	1,919	71.7	775	1,144
1912	2,730,506	200	265	255	305	246	193	107	51	1	2,018	73.6	797	1,221
1913	2,769,710	228	283	298	306	287	195	119	55	1	2,226	80.3	860	1,366
1914	2,796,957	218	276	275	302	273	203	119	45	1	2,193	78.4	854	1,339
1915	2,824,327	231	293	327	308	328	222	112	55	1	2,314	81.9	895	1,419
1916	2,860,920	271	286	302	314	297	233	140	55	1	2,383	83.2	954	1,429

## DEATHS FROM CANCER AND MALIGNANT TUMOR FOR YEAR 1918.

Total Number Deaths and Death Rates per 100,000 Population.

COUNTIES	Total	Male	Female	Rates	COUNTIES	Total	Male	Female	Rates
<b>NORTHERN COUNTIES</b>	886	377	509	88.7	<b>CENTRAL CO.—Cont.</b>				
Adams.....	20	9	11	90.9	Marion.....	301	103	198	101.5
Allen.....	106	46	60	103.2	Monroe.....	15	5	10	60.7
Benton.....	6	1	5	47.3	Montgomery.....	34	13	21	110.9
Blackford.....	14	6	8	86.4	Morgan.....	11	3	8	51.1
Carroll.....	15	7	8	83.4	Owen.....	11	5	6	78.2
Cass.....	38	18	20	100.6	Parke.....	13	6	7	58.5
DeKalb.....	16	8	8	62.9	Putnam.....	16	10	6	77.7
Elkhart.....	45	16	29	87.5	Randolph.....	24	12	12	81.2
Fulton.....	22	8	14	130.4	Rush.....	16	3	13	81.9
Grant.....	51	21	30	97.2	Shelby.....	24	5	19	85.8
Howard.....	25	7	18	68.7	Tippecanoe.....	45	18	27	109.6
Huntington.....	25	14	11	85.1	Tipton.....	16	7	9	90.8
Jasper.....	16	7	9	122.1	Union.....	7	2	5	111.8
Jay.....	21	6	15	83.6	Vermillion.....	14	5	9	67.7
Kosciusko.....	33	9	24	117.2	Vigo.....	96	38	58	95.2
Lagrange.....	15	7	8	99.0	Warren.....	8	2	6	73.4
Lake.....	64	34	30	55.6	Wayne.....	58	22	36	125.7
Laporte.....	45	25	20	91.5	<b>SOUTHERN COUNTIES</b>	451	192	259	65.8
Marshall.....	22	14	8	90.6	Clark.....	18	10	8	59.4
Miami.....	28	14	14	91.5	Crawford.....	7	3	4	58.0
Newton.....	13	2	11	123.6	Davies.....	18	7	11	64.9
Noble.....	33	17	16	133.0	Dearborn.....	23	11	12	105.6
Porter.....	22	11	11	105.3	Dubois.....	12	2	10	60.4
Pulaski.....	8	4	4	60.1	Floyd.....	32	9	23	105.4
Starke.....	10	1	9	94.0	Gibson.....	24	10	14	79.1
Steuben.....	21	5	16	144.8	Greene.....	19	9	10	46.3
St. Joseph.....	80	27	53	82.5	Harrison.....	15	6	9	74.1
Wabash.....	25	11	14	92.7	Jackson.....	20	6	14	80.9
Wells.....	17	8	9	75.0	Jefferson.....	15	7	8	73.2
White.....	12	6	6	68.0	Jennings.....	8	4	4	56.1
Whitley.....	18	8	10	105.1	Knox.....	21	5	16	49.5
<b>CENTRAL COUNTIES</b>	1,046	385	661	88.8	Lawrence.....	17	5	12	51.4
Bartholomew.....	26	11	15	103.4	Martin.....	10	4	6	75.0
Boone.....	13	4	9	51.6	Ohio.....	5	3	2	115.5
Brown.....	4	1	3	50.1	Orange.....	21	12	9	121.3
Clay.....	22	6	16	65.8	Perry.....	5	2	3	27.1
Clinton.....	35	10	25	127.6	Pike.....	11	7	4	55.9
Decatur.....	17	7	10	89.5	Posey.....	9	4	5	41.1
Delaware.....	36	12	24	68.0	Ripley.....	16	7	9	73.0
Fayette.....	17	3	14	114.3	Scott.....	6	4	2	68.7
Fountain.....	22	11	11	106.5	Spencer.....	12	7	5	58.0
Franklin.....	9	5	4	58.7	Sullivan.....	16	7	9	44.8
Hamilton.....	17	5	12	62.5	Switzerland.....	11	8	3	111.0
Hancock.....	17	6	11	89.3	Vanderburg.....	54	20	34	64.0
Hendricks.....	17	5	12	81.5	Warrick.....	10	5	5	44.6
Henry.....	16	7	9	55.9	Washington.....	16	8	8	91.7
Johnson.....	18	10	8	87.2	<b>URBAN</b>	1,128			86.2
Madison.....	51	23	28	76.8	<b>RURAL</b>	1,255			80.8
					<b>STATE</b>	2,383	954	1,429	83.3

TABLE No. 11.  
*Poliomyelitis by Months, Ages and Counties for the Year Ending  
 December 31, 1916.*

## MONTHS.

January.....	—	July.....	5
February.....	1	August.....	7
March.....	2	September.....	12
April.....	1	October.....	9
May.....	1	November.....	10
June.....	—	December.....	3

## AGES.

Under 1 year.....	8	In 5 to 9 years.....	4
In 1 year.....	8	10 to 14 years.....	8
In 2 years.....	7	15 to 19 years.....	3
In 3 years.....	3	20 to 24 years.....	2
In 4 years.....	6	25 to 29 years.....	2

## COUNTIES.

Boone.....	1	Noble.....	1
Carroll.....	2	Orange.....	1
Cass.....	2	Putnam.....	1
Dearborn.....	2	Randolph.....	1
Dekalb.....	3	Rush.....	2
Elkhart.....	1	Shelby.....	1
Floyd.....	1	Steuben.....	2
Fountain.....	1	Sullivan.....	1
Howard.....	2	Tippecanoe.....	1
Jennings.....	1	Tipton.....	1
Lake.....	2	Vanderburg.....	3
Madison.....	1	Vigo.....	1
Marion.....	7	Wabash.....	1
Marshall.....	1	Wayne.....	1
Martin.....	1	White.....	1
Miami.....	2	Whitley.....	2

Total Males.....27

Total Females.....24

Total.....51

## DEATHS IN INDIANA FROM PELLAGRA BY COUNTIES FOR PAST SIX YEARS.

COUNTIES.	1911	1912	1913	1914	1915	1916
Allen.....						1
Clark.....					1	
Dekalb.....					1	
Grant.....			1			
Green.....						1
Hamilton.....					1	
Howard.....	1			1		
Jackson.....			1			
Jefferson.....		2				
Laporte.....	1					
Marion.....			1			
Randolph.....	1					
Steuben.....					1	
Sullivan.....						1
Tippecanoe.....			1		1	
Vanderburg.....					1	
Washington.....					1	
Wayne.....				1		1
Totals.....	3	2	4	2	7	4

## MONTHLY ANALYSIS OF DISEASE PREVALENCE.

*(As published in Monthly Bulletin.)*

January, 1916.—Influenza was reported as the most prevalent disease. The order of prevalence is as follows: Influenza, scarlet fever, tonsillitis, acute bronchitis lobar pneumonia, diphtheria and croup, pulmonary tuberculosis, acute rheumatism, bronchial pneumonia, measles, chickenpox, typhoid fever, whooping cough, diarrhea and enteritis, erysipelas, smallpox, other forms of tuberculosis, malaria fever, intermittent and remittent fever, rabies in human, cerebro-spinal fever, dysentery, puerperal fever, cholera morbus, rabies in animals, pellagra, trachoma, poliomyelitis.

February, 1916.—Influenza was reported as the most prevalent disease. The order of prevalence is as follows: Influenza, tonsillitis, scarlet fever, pulmonary tuberculosis, acute bronchitis, measles, lobar pneumonia, bronchial pneumonia, diphtheria and croup, acute rheumatism, typhoid fever, whooping cough, chicken-pox, diarrhea and enteritis, smallpox, erysipelas, other forms of tuberculosis, intermittent and remittent fever, malaria fever, cholera morbus, puerperal fever, dysentery, rabies in animals, cerebro-spinal fever, rabies in human, poliomyelitis.

March, 1916.—Measles was reported as the most prevalent disease. The order of prevalence is as follows: Measles, scarlet fever, tonsillitis, pulmonary tuberculosis, influenza, acute bron-

DEATHS FROM CANCER FOR TEN YEARS BY AGES, SEX AND RATE.

YEAR.	Population	Under 1 Year	1 Year	2 Years	3 Years	4 Years	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49
1907.	2,714,744						5	1	5	7	8	27	42	103	154
1908.	2,730,144	1	1	1	1	1	3	3	3	9	23	22	70	82	140
1909.	2,733,550	4	3	4	3	1	6	3	6	10	18	35	70	101	144
1910.	2,700,876		2	2	1		3	3	9	4	14	30	66	104	190
1911.	2,700,876	1	2	2	1	1	3	3	9	10	22	39	66	123	150
1912.	2,730,506		1	1	1	1	4	5	4	9	16	44	65	111	134
1913.	2,769,710	4	5	1	1	1	5	4	2	11	24	56	66	111	174
1914.	2,796,957	1	2	3	1	4	1	2	8	9	24	46	77	123	179
1915.	2,824,237		3	1	1		7	7	5	12	22	44	75	115	156
1916.	2,860,920	4		1	2		3	3	6	9	24	41	84	140	169

DEATHS FROM CANCER FOR TEN YEARS BY AGES, SEX AND RATE—Continued.

YEAR.	Population	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	85 to 89 and Over	Un- known	Total	Rate	Males	Females
1907.	2,714,744	152	181	214	212	160	119	106	10	5	1,512	55.7	687	825
1908.	2,730,144	189	236	252	240	198	149	105	9	1	1,739	63.6	755	984
1909.	2,733,550	217	201	240	251	215	170	120	10	2	1,828	66.8	804	1,024
1910.	2,700,876	189	213	254	222	205	160	101	43	1	1,837	68.0	722	1,115
1911.	2,700,876	187	231	228	285	253	172	68	64	2	1,919	71.7	775	1,144
1912.	2,730,506	200	265	255	305	246	183	107	51		2,018	73.6	797	1,221
1913.	2,769,710	228	288	288	306	287	196	119	35	1	2,226	80.3	860	1,366
1914.	2,796,957	218	276	293	302	273	203	119	46	1	2,262	81.4	854	1,339
1915.	2,824,237	231	283	327	308	328	222	112	55		2,314	81.9	885	1,419
1916.	2,860,920	271	286	302	314	297	233	140	55		2,383	83.2	954	1,429



## DEATHS FROM CANCER AND MALIGNANT TUMOR FOR YEAR 1916.

Total Number Deaths and Death Rates per 100,000 Population.

COUNTIES	Total	Male	Female	Rates	COUNTIES	Total	Male	Female	Rates
<b>NORTHERN COUNTIES</b>	886	377	509	88.7	<b>CENTRAL CO.—Cont.</b>				
Adams	20	9	11	90.9	Marion	301	103	198	101.5
Allen	106	46	60	103.2	Monroe	15	5	10	60.7
Benton	6	1	5	47.3	Montgomery	34	13	21	110.9
Blackford	14	6	8	86.4	Morgan	11	3	8	51.1
Carroll	15	7	8	83.4	Owen	11	5	6	78.2
Cass	38	18	20	100.6	Parke	13	6	7	58.5
Dekalb	16	8	8	62.9	Putnam	16	10	6	77.7
Elkhart	45	16	29	87.5	Randolph	24	12	12	81.2
Fulton	22	8	14	130.4	Rush	16	3	13	81.9
Grant	51	21	30	97.2	Shelby	24	5	19	85.8
Howard	25	7	18	68.7	Tippecanoe	45	18	27	109.6
Huntington	25	14	11	85.1	Tipton	16	7	9	90.8
Jasper	16	7	9	122.1	Union	7	2	5	111.8
Jay	21	6	15	83.6	Vermillion	14	5	9	67.7
Kosciusko	33	9	24	117.2	Vigo	96	38	58	95.2
Lagrange	15	7	8	99.0	Warren	8	2	6	73.4
Lake	64	34	30	55.6	Wayne	58	22	36	125.7
Laporte	45	25	20	91.5	<b>SOUTHERN COUNTIES</b>	451	192	259	65.8
Marshall	22	14	8	90.6	Clark	18	10	8	59.4
Miami	28	14	14	91.5	Crawford	7	3	4	58.0
Newton	13	2	11	123.6	Daviess	18	7	11	64.9
Noble	33	17	16	133.0	Dearborn	23	11	12	105.6
Porter	22	11	11	105.3	Dubois	12	2	10	60.4
Pulaski	8	4	4	60.1	Floyd	32	9	23	105.4
Starke	10	1	9	94.0	Gibson	24	10	14	79.1
Steuben	21	5	16	144.8	Greene	19	9	10	46.3
St. Joseph	80	27	53	82.5	Harrison	15	6	9	74.1
Wabash	25	11	14	92.7	Jackson	20	6	14	80.9
Wells	17	8	9	75.0	Jefferson	15	7	8	73.2
White	12	6	6	68.0	Jennings	8	4	4	56.1
Whitley	18	8	10	105.1	Knox	21	5	16	49.5
<b>CENTRAL COUNTIES</b>	1,046	385	661	88.8	Lawrence	17	5	12	51.4
Bartholomew	26	11	15	103.4	Martin	10	4	6	75.0
Boone	13	4	9	51.6	Ohio	5	3	2	115.5
Brown	4	1	3	50.1	Orange	21	12	9	121.3
Clay	22	6	16	65.8	Perry	5	2	3	27.1
Cinton	35	10	25	127.6	Pike	11	7	4	55.9
Decatur	17	7	10	89.5	Posey	9	4	5	41.1
Delaware	36	12	24	68.0	Ripley	16	7	9	73.0
Fayette	17	3	14	114.3	Scott	6	4	2	68.7
Fountain	22	11	11	106.5	Spencer	12	7	5	58.0
Franklin	9	5	4	58.7	Sullivan	16	7	9	44.8
Hamilton	17	5	12	62.5	Switzerland	11	8	3	111.0
Hancock	17	6	11	89.3	Vanderburg	54	20	34	64.0
Hendricks	17	5	12	81.5	Warrick	10	5	5	44.6
Henry	16	7	9	55.9	Washington	16	8	8	91.7
Johnson	18	10	8	87.2	<b>URBAN</b>	1,128			86.2
Madison	51	23	28	76.8	<b>RURAL</b>	1,255			80.8
					<b>STATE</b>	2,383	954	1,429	83.3

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 December 31, 1916.*

## MONTHS.

January.....	—	July.....	5
February.....	1	August.....	7
March.....	2	September.....	12
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## AGES.

Under 1 year.....	8	In 5 to 9 years.....	4
In 1 year.....	8	10 to 14 years.....	8
In 2 years.....	7	15 to 19 years.....	3
In 3 years.....	3	20 to 24 years.....	2
In 4 years.....	6	25 to 29 years.....	2

## COUNTIES.

Boone.....	1	Noble.....	1
Carroll.....	2	Orange.....	1
Cass.....	2	Putnam.....	1
Dearborn.....	2	Randolph.....	1
Dekalb.....	3	Rush.....	2
Elkhart.....	1	Shelby.....	1
Floyd.....	1	Steuben.....	2
Fountain.....	1	Sullivan.....	1
Howard.....	2	Tippecanoe.....	1
Jennings.....	1	Tipton.....	1
Lake.....	2	Vanderburg.....	3
Madison.....	1	Vigo.....	1
Marion.....	7	Wabash.....	1
Marshall.....	1	Wayne.....	1
Martin.....	1	White.....	1
Miami.....	2	Whitley.....	2

Total Males.....	27
Total Females.....	24
Total.....	51

## DEATHS IN INDIANA FROM PELLAGRA BY COUNTIES FOR PAST SIX YEARS.

COUNTIES.	1911	1912	1913	1914	1915	1916
Allen.....						1
Clark.....					1	
Dekalb.....					1	
Grant.....			1			
Green.....						1
Hamilton.....					1	
Howard.....	1			1		
Jackson.....			1			
Jefferson.....		2				
Laporte.....	1					
Marion.....			1			
Randolph.....	1					
Steuben.....					1	
Sullivan.....						1
Tiptecanoe.....			1		1	
Vanderburg.....					1	
Washington.....					1	
Wayne.....				1		1
Totals.....	3	2	4	2	7	4

## MONTHLY ANALYSIS OF DISEASE PREVALENCE.

*(As published in Monthly Bulletin.)*

January, 1916.—Influenza was reported as the most prevalent disease. The order of prevalence is as follows: Influenza, scarlet fever, tonsillitis, acute bronchitis lobar pneumonia, diphtheria and croup, pulmonary tuberculosis, acute rheumatism, bronchial pneumonia, measles, chickenpox, typhoid fever, whooping cough, diarrhea and enteritis, erysipelas, smallpox, other forms of tuberculosis, malaria fever, intermittent and remittent fever, rabies in human, cerebro-spinal fever, dysentery, puerperal fever, cholera morbus, rabies in animals, pellagra, trachoma, poliomyelitis.

February, 1916.—Influenza was reported as the most prevalent disease. The order of prevalence is as follows: Influenza, tonsillitis, scarlet fever, pulmonary tuberculosis, acute bronchitis, measles, lobar pneumonia, bronchial pneumonia, diphtheria and croup, acute rheumatism, typhoid fever, whooping cough, chicken-pox, diarrhea and enteritis, smallpox, erysipelas, other forms of tuberculosis, intermittent and remittent fever, malaria fever, cholera morbus, puerperal fever, dysentery, rabies in animals, cerebro-spinal fever, rabies in human, poliomyelitis.

March, 1916.—Measles was reported as the most prevalent disease. The order of prevalence is as follows: Measles, scarlet fever, tonsillitis, pulmonary tuberculosis, influenza, acute bron-

DEATHS FROM CANCER FOR TEN YEARS BY AGES, SEX AND RATE.

YEAR.	Population	Under 1 Year	1 Year	2 Years	3 Years	4 Years	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49
1907.	2,714,744	1	1	1	1	1	5	1	5	7	8	27	42	103	154
1908.	2,730,144	1	1	1	1	1	3	3	3	9	23	22	70	82	140
1909.	2,733,550	4	3	1	1	1	6	3	6	10	18	35	70	101	144
1910.	2,700,876	1	2	4	3	3	3	3	6	4	14	30	66	104	190
1911.	2,700,876	1	2	1	1	1	3	3	9	10	22	39	66	123	150
1912.	2,730,506	1	1	1	1	1	4	5	4	9	16	44	65	111	134
1913.	2,769,710	4	5	1	1	1	5	4	2	11	24	56	66	111	174
1914.	2,796,937	1	2	3	1	4	1	2	8	9	24	46	77	23	179
1915.	2,824,237	3	3	1	1	1	7	7	5	12	22	44	75	115	156
1916.	2,860,920	4	1	1	2	3	3	3	6	9	24	41	84	140	169

DEATHS FROM CANCER FOR TEN YEARS BY AGES, SEX AND RATE—Continued.

YEAR.	Population	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	85 to 95 and Over	Un-known	Total	Rate	Males	Females
1907.	2,714,744	152	181	214	212	160	119	106	10	5	1,512	55.7	687	825
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1909.	2,733,550	217	201	240	251	215	170	120	10	2	1,828	66.8	804	1,024
1910.	2,700,876	189	213	254	222	205	180	101	43	1	1,837	68.0	722	1,115
1911.	2,700,876	187	231	228	285	253	172	68	64	2	1,919	71.7	776	1,144
1912.	2,730,506	200	265	255	305	246	193	107	51	1	2,018	73.6	797	1,221
1913.	2,769,710	228	283	288	306	287	195	119	55	1	2,226	80.3	860	1,366
1914.	2,796,937	218	276	275	302	273	203	119	46	1	2,226	78.4	854	1,339
1915.	2,824,237	231	283	327	308	328	222	112	55	1	2,314	81.9	895	1,419
1916.	2,860,920	271	286	302	314	297	233	140	55	1	2,383	83.2	954	1,429

## DEATHS FROM CANCER AND MALIGNANT TUMOR FOR YEAR 1916.

Total Number Deaths and Death Rates per 100,000 Population.

COUNTIES	Total	Male	Female	Rates	COUNTIES	Total	Male	Female	Rates
<b>NORTHERN COUNTIES</b>	<b>886</b>	<b>377</b>	<b>509</b>	<b>88.7</b>	<b>CENTRAL CO.—Cont.</b>				
Adams.....	20	9	11	90.9	Marion.....	301	103	198	101.5
Allen.....	106	46	60	103.2	Monroe.....	15	5	10	60.7
Benton.....	6	1	5	47.3	Montgomery.....	34	13	21	110.9
Blackford.....	14	6	8	86.4	Morgan.....	11	3	8	51.1
Carroll.....	15	7	8	83.4	Owen.....	11	5	6	78.2
Cass.....	38	18	20	100.6	Parke.....	13	6	7	58.5
Dekalb.....	16	8	8	62.9	Putnam.....	16	10	6	77.7
Elkhart.....	45	16	29	87.5	Randolph.....	24	12	12	81.2
Fulton.....	22	8	14	130.4	Rush.....	16	3	13	81.9
Grant.....	51	21	30	97.2	Shelby.....	24	5	19	85.8
Howard.....	25	7	18	68.7	Tippecanoe.....	46	18	27	109.6
Huntington.....	25	14	11	85.1	Tipton.....	16	7	9	90.8
Jasper.....	16	7	9	122.1	Union.....	7	2	5	111.8
Jay.....	21	6	15	83.6	Vermillion.....	14	5	9	67.7
Kosciusko.....	33	9	24	117.2	Vigo.....	96	38	58	95.2
Lagrange.....	15	7	8	99.0	Warren.....	8	2	6	73.4
Lake.....	64	34	30	55.6	Wayne.....	58	22	36	125.7
Laporte.....	45	25	20	91.5					
Marshall.....	22	14	8	90.6	<b>SOUTHERN COUNTIES</b>	<b>451</b>	<b>192</b>	<b>259</b>	<b>65.8</b>
Miami.....	28	14	14	91.5	Clark.....	18	10	8	59.4
Newton.....	13	2	11	123.6	Crawford.....	7	3	4	58.0
Noble.....	33	17	16	133.0	Davies.....	18	7	11	64.9
Porter.....	22	11	11	105.3	Dearborn.....	23	11	12	105.6
Pulaski.....	8	4	4	60.1	Dubois.....	12	2	10	60.4
Starke.....	10	1	9	94.0	Floyd.....	32	9	23	105.4
Steuben.....	21	5	16	144.8	Gibson.....	24	10	14	79.1
St. Joseph.....	80	27	53	82.5	Greene.....	19	9	10	46.3
Wabash.....	25	11	14	92.7	Harrison.....	15	6	9	74.1
Wells.....	17	8	9	75.0	Jackson.....	20	6	14	80.9
White.....	12	6	6	68.0	Jefferson.....	15	7	8	73.2
Whitley.....	18	8	10	105.1	Jennings.....	8	4	4	56.1
<b>CENTRAL COUNTIES</b>	<b>1,046</b>	<b>385</b>	<b>661</b>	<b>88.8</b>	Knox.....	21	5	16	49.5
Bartholomew.....	26	11	15	103.4	Lawrence.....	17	5	12	51.4
Boone.....	13	4	9	51.6	Martin.....	10	4	6	75.0
Brown.....	4	1	3	50.1	Ohio.....	5	3	2	115.5
Clay.....	22	6	16	65.8	Orange.....	21	12	9	121.3
Clinton.....	35	10	25	127.6	Perry.....	5	2	3	27.1
Decatur.....	17	7	10	89.5	Pike.....	11	7	4	55.9
Delaware.....	36	12	24	68.0	Posey.....	9	4	5	41.1
Fayette.....	17	3	14	114.3	Ripley.....	16	7	9	73.0
Fountain.....	22	11	11	106.5	Scott.....	6	4	2	68.7
Franklin.....	9	5	4	58.7	Spencer.....	12	7	5	58.0
Hamilton.....	17	5	12	62.5	Sullivan.....	16	7	9	44.8
Hancock.....	17	6	11	89.3	Switzerland.....	11	8	3	111.0
Hendricks.....	17	5	12	81.5	Vanderburg.....	54	20	34	64.0
Henry.....	16	7	9	55.9	Warren.....	10	5	5	44.6
Johnson.....	18	10	8	87.2	Washington.....	16	8	8	91.7
Madison.....	51	23	28	76.8	<b>URBAN</b>	<b>1,128</b>			<b>86.2</b>
					<b>RURAL</b>	<b>1,255</b>			<b>80.8</b>
					<b>STATE</b>	<b>2,383</b>	<b>954</b>	<b>1,429</b>	<b>83.3</b>

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*Poliomyelitis by Months, Ages and Counties for the Year Ending  
 December 31, 1916.*

## MONTHS.

January.....	-	July.....	5
February.....	1	August.....	7
March.....	2	September.....	12
April.....	1	October.....	9
May.....	1	November.....	10
June.....	-	December.....	3

## AGES.

Under 1 year.....	8	In 5 to 9 years.....	4
In 1 year.....	8	10 to 14 years.....	8
In 2 years.....	7	15 to 19 years.....	3
In 3 years.....	3	20 to 24 years.....	2
In 4 years.....	6	25 to 29 years.....	2

## COUNTIES.

Boone.....	1	Noble.....	1
Carroll.....	2	Orange.....	1
Cass.....	2	Putnam.....	1
Dearborn.....	2	Randolph.....	1
Dekalb.....	3	Rush.....	2
Elkhart.....	1	Shelby.....	1
Floyd.....	1	Steuben.....	2
Fountain.....	1	Sullivan.....	1
Howard.....	2	Tippecanoe.....	1
Jennings.....	1	Tipton.....	1
Lake.....	2	Vanderburg.....	3
Madison.....	1	Vigo.....	1
Marion.....	7	Wabash.....	1
Marshall.....	1	Wayne.....	1
Martin.....	1	White.....	1
Miami.....	2	Whitley.....	2

Total Males.....	27
Total Females.....	24
Total.....	51

# DEATHS IN INDIANA FROM PELLAGRA BY COUNTIES FOR PAST SIX YEARS.

COUNTIES.	1911	1912	1913	1914	1915	1916
Allen						1
Clark					1	
Dekalb					1	
Grant			1			
Green						1
Hamilton					1	
Howard	1			1		
Jackson			1			
Jefferson		2				
Laporte	1					
Marion			1			
Randolph	1					
Steuben					1	
Sullivan						1
Tippecanoe			1		1	
Vanderburg					1	
Washington					1	
Wayne				1		1
Totals	3	2	4	2	7	4

## MONTHLY ANALYSIS OF DISEASE PREVALENCE.

(As published in *Monthly Bulletin*.)

January, 1916.—Influenza was reported as the most prevalent disease. The order of prevalence is as follows: Influenza, scarlet fever, tonsillitis, acute bronchitis lobar pneumonia, diphtheria and croup, pulmonary tuberculosis, acute rheumatism, bronchial pneumonia, measles, chickenpox, typhoid fever, whooping cough, diarrhea and enteritis, erysipelas, smallpox, other forms of tuberculosis, malaria fever, intermittent and remittent fever, rabies in human, cerebro-spinal fever, dysentery, puerperal fever, cholera morbus, rabies in animals, pellagra, trachoma, poliomyelitis.

February, 1916.—Influenza was reported as the most prevalent disease. The order of prevalence is as follows: Influenza, tonsillitis, scarlet fever, pulmonary tuberculosis, acute bronchitis, measles, lobar pneumonia, bronchial pneumonia, diphtheria and croup, acute rheumatism, typhoid fever, whooping cough, chicken-pox, diarrhea and enteritis, smallpox, erysipelas, other forms of tuberculosis, intermittent and remittent fever, malaria fever, cholera morbus, puerperal fever, dysentery, rabies in animals, cerebro-spinal fever, rabies in human, poliomyelitis.

March, 1916.—Measles was reported as the most prevalent disease. The order of prevalence is as follows: Measles, scarlet fever, tonsillitis, pulmonary tuberculosis, influenza, acute bron-

chitis, acute rheumatism, lobar pneumonia, bronchial pneumonia, diphtheria and membranous croup, whooping cough, chicken-pox, typhoid fever, small pox, diarrhea and enteritis, intermittent and remittent fever, other forms of tuberculosis, erysipelas, malaria fever, cholera morbus, dysentery, puerperal fever, cerebro-spinal fever, rabies in human, rabies in animals, trachoma, poliomyelitis.

April, 1916.—Measles, as in the preceding month, was reported as the most prevalent disease. The order of prevalence is as follows: Measles, tonsillitis, pulmonary tuberculosis, rheumatism, scarlet fever, acute bronchitis, diphtheria, influenza, bronchial pneumonia, lobar pneumonia, whooping cough, typhoid fever, chickenpox, rabies in human, diarrhea and enteritis, small pox, other forms of tuberculosis, intermittent and remittent fever, erysipelas, malaria fever, dysentery, puerperal fever, rabies in animals, cerebro-spinal fever, cholera morbus, poliomyelitis, trachoma.

May, 1916.—Measles was reported as the most prevalent disease. The order of prevalence was as follows: Measles, tuberculosis pulmonary, tonsillitis, scarlet fever, rheumatism, bronchitis, diphtheria, whooping cough, chicken pox, typhoid fever, pneumonia, diarrhea, influenza, smallpox, malaria fever, intermittent and remittent fever, dysentery, tuberculosis, other forms, cholera morbus, rabies in human, erysipelas, rabies in animals, cerebro-spinal fever, puerperal fever, poliomyelitis and trachoma.

June, 1916.—Measles was again reported as the most prevalent infectious disease. The order of prevalence was as follows: Measles, pulmonary tuberculosis, tonsillitis, typhoid fever, acute rheumatism, diarrhea and enteritis, scarlet fever, whooping cough, diphtheria and croup, acute bronchitis, dysentery, smallpox, cholera morbus, malaria fever, influenza, chickenpox, intermittent and remittent fever, bronchial pneumonia, lobar pneumonia, other forms of tuberculosis, rabies in human, erysipelas, puerperal fever, rabies in animals, cerebro-spinal fever, poliomyelitis, trachoma.

July, 1916.—Typhoid fever was reported as the most prevalent infectious disease. The order of prevalence was as follows: Typhoid fever, measles, tuberculosis, diarrhea and enteritis, tonsillitis, cholera morbus, diphtheria, and croup, dysentery, acute rheumatism, scarlet fever, whooping cough, malaria fever, smallpox, acute bronchitis poliomyelitis, intermittent and remittent fever, lobar pneumonia, influenza, bronchial pneumonia, chicken-



pox, rabies in human, erysipelas, puerperal fever, rabies in animals, cerebro-spinal fever, trachoma, pellagra.

September, 1916.—Typhoid fever was reported as the most prevalent infectious disease. The order of prevalence was as follows: Typhoid fever, tonsillitis, diphtheria and croup, acute bronchitis, scarlet fever, poliomyelitis, acute rheumatism, diarrhea and enteritis, pulmonary tuberculosis, malaria fever, measles, dysentery, intermittent and remittent fever, other forms of tuberculosis, whooping cough, cholera morbus, influenza, lobar pneumonia, bronchial pneumonia, chickenpox, erysipelas, cerebro-spinal fever, smallpox, puerperal fever, rabies in human, rabies in animals.

October, 1916.—Typhoid fever as in the preceding month, was reported as the most prevalent infectious disease. The order of prevalence was as follows: Typhoid fever, scarlet fever, diphtheria tonsillitis, acute bronchitis, acute rheumatism, chickenpox, pulmonary tuberculosis, influenza, poliomyelitis, diarrhea and enteritis, measles, lobar pneumonia, malaria fever, bronchial pneumonia, intermittent and remittent fever, whooping cough, other forms of tuberculosis, erysipelas, smallpox, dysentery cholera morbus, cerebro-spinal fever, puerperal fever, rabies in human, rabies in animals, trachoma.

November, 1916.—Scarlet fever was reported as the most prevalent infectious disease. The order of prevalence was as follows: Scarlet fever, diphtheria and croup, tonsillitis, typhoid fever, acute bronchitis, pulmonary tuberculosis, chickenpox, influenza, measles, lobar pneumonia, bronchial pneumonia, acute rheumatism, whooping cough, smallpox, diarrhea and enteritis, erysipelas, other forms of tuberculosis, poliomyelitis, intermittent and remittent fever, malaria fever, dysentery, puerperal fever, cholera morbus, cerebro-spinal fever, rabies in human, rabies in animals, trachoma.

December, 1916.—Scarlet fever was reported as the most prevalent infectious disease. The order of prevalence was as follows: Scarlet fever, diphtheria, measles, tonsillitis, acute bronchitis, influenza, lobar pneumonia, chickenpox, typhoid fever, acute rheumatism, bronchial pneumonia, pulmonary tuberculosis, smallpox, whooping cough, diarrhea and enteritis, intermittent and remittent fever, erysipelas, malaria fever, other forms of tuberculosis, dysentery, cholera morbus, puerperal fever, poliomyelitis, rabies in human, rabies in animals, leprosy, trachoma, cerebro-spinal fever.



TABLES  
OF  
ANNUAL STATISTICAL REPORT  
FOR THE YEAR 1916.

TABLE No. 1.

*Deaths in Indiana During the Year Ending December 31, 1916,  
With Rates per 100,000 Estimated Population.*

Classification Number.	CAUSE OF DEATH.	Number of Deaths.	Death Rate Per 100,000
<b>I. GENERAL DISEASES.</b>			
1	Typhoid Fever.....	604	21.1
2	Typhus Fever.....		
3	Relapsing Fever.....		
4	Malaria.....	41	1.4
5	Smallpox.....	1	.03
6	Measles.....	204	7.1
7	Scarlet Fever.....	96	3.3
8	Whooping Cough.....	252	8.8
9	Diphtheria and Croup.....	386	13.5
10	Influenza.....	968	33.8
11	Miliary Fever.....		
12	Asiatic Cholera.....		
13	Cholera Nostras.....	6	.2
14	Dysentery.....	166	5.8
15	Plague.....		
16	Yellow Fever.....		
17	Leprosy.....		
18	Erysipelas.....	84	2.9
19	Other Epidemic Diseases.....	7	.2
20	Purulent Infection and Septicaemia.....	95	3.3
21	Glanders.....		
22	Anthrax.....	2	.06
23	Rabies.....		
24	Tetanus.....	37	1.2
25	Mycosis.....	1	.03
26	Pellagra.....	4	.1
27	Beriberi.....		
28	Tuberculosis of the Lungs.....	3,179	111.1
29	Acute Miliary Tuberculosis.....	80	2.7
30	Tuberculosis Meningitis.....	177	6.1
31	Abdominal Tuberculosis.....	224	7.8
32	Pott's Disease.....	37	1.2
33	White Swellings.....	21	.7
34	Tuberculosis of Other Organs.....	64	2.2
35	Disseminated Tuberculosis.....	41	1.4

TABLE No. 1—Continued.

Classification Number.	CAUSE OF DEATH.	Number of Deaths.	Death Rate Per 100,000.
36	Rickets.....	17	.5
37	Syphilis.....	227	7.9
38	Gonococcus Infection.....	8	.2
39	Cancer of the Buccal Cavity.....	79	2.7
40	Cancer of the Stomach and Liver.....	984	34.4
41	Cancer of the Peritoneum, intestines, Rectum.....	280	9.7
42	Cancer of the Female Genital Organs.....	369	12.9
43	Cancer of the Breast.....	206	7.2
44	Cancer of the Skin.....	140	4.8
45	Cancer of other Organs, or of organs not Specified.....	325	11.3
46	Other Tumors (Tumors of the Femal Genital Organs excepted).....	10	.3
47	Acute Articular Rheumatism.....	157	5.4
48	Chronic Rheumatism and Gout.....	33	1.1
49	Scurvy.....	1	.03
50	Diabetes.....	483	16.8
51	Exophthalmic Goitre.....	63	2.2
52	Addison's Disease.....	6	.2
53	Leuchaemia.....	55	1.9
54	Anaemia, Chlorosis.....	154	5.3
55	Other General Diseases.....	31	1.0
56	Alcoholism (Acute or Chronic).....	132	4.6
57	Chronic Lead Poisonings.....	6	.2
58	Other Chronic Occupation poisoning.....	8	.2
59	Other Chronic Poisonings.....	8	.2
II. DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSE.			
60	Encephalitis.....	35	1.2
61a	Simple Meningitis.....	70	2.4
61b	Cerebro-Spinal Meningitis (Undefined).....	25	.8
61c	Cerebro-spinal Fever.....	45	1.5
62	Locomotor Ataxia.....	66	2.3
63a	Acute Anterior Poliomyelitis.....	51	1.7
63b	Other Disease of the Spinal Cord.....	172	6.0
64	Cerebral Hemorrhage, Apoplexy.....	2,739	95.7
65	Softening of the Brain.....	68	2.3
66	Paralysis Without Specified Cause.....	130	4.5
67	General Paralysis of the Insane.....	255	8.9
68	Other Forms of Mental Alienation.....	73	2.5
69	Epilepsy.....	143	4.9
70	Convulsions (non-puerperal).....	8	.2
71	Convulsions of Infants.....	25	.8
72	Chorea.....	9	.3
73	Neuralgia and Neuritis.....	20	.6
74	Other Diseases of the Nervous System.....	57	1.9
75	Diseases of the Eyes and their Annexa.....	4	.1
76	Diseases of the Ears.....	65	2.2
III. DISEASES OF THE CIRCULATORY SYSTEM.			
77	Pericarditis.....	33	1.1
78	Acute Endocarditis.....	173	6.0
79	Organic Diseases of the Heart.....	4,253	148.7
80	Angina Pectoris.....	299	10.4
81	Diseases of the Arteries, Atheroma, Aneurism, etc.....	795	27.8
82	Embolism and Thrombosis.....	91	3.1
83	Diseases of the Veins (Varicos, Hemorrhoids, Phlebitis, etc.).....	16	.5
84	Diseases of the Lymphatic System (Lymphangitis, etc.).....	16	.5
85	Hemorrhage, other Diseases of the Circulatory System.....	14	.4

TABLE No. 1—Continued.

Classification Number.	CAUSE OF DEATH.	Number of Deaths.	Death Rate Per 100,000.
IV. DISEASES OF THE RESPIRATORY SYSTEM.			
86	Diseases of the Nasal Fassage.....	4	.1
87	Diseases of the Larynx.....	37	1.2
88	Diseases of the Thyroid Body.....	35	1.2
89	Acute Bronchitis.....	163	5.6
90	Chronic Bronchitis.....	206	7.2
91	Broncho Pneumonia.....	1,182	41.3
92a	Lobar Pneumonia.....	1,639	57.3
92b	Pneumonia (Undefined).....	497	17.3
93	Pleurisy.....	61	2.1
94	Pulmonary Congestion, Pulmonary Apoplexy.....	23	.8
95	Gangrene of the Lungs.....	4	.1
96	Asthma.....	81	2.8
97	Pulmonary Emphysema.....	9	.3
98	Other Diseases of the respiratory System (Tuberculosis excepted).....	20	.6
V. DISEASES OF THE DIGESTIVE SYSTEM.			
99	Diseases of the Mouth and Annex.....	21	.7
100	Diseases of the Pharynx.....	43	1.5
101	Diseases of the Oesophagus.....	14	.4
102	Ulcer of the Stomach.....	101	3.5
103	Other Diseases of the Stomach (Cancer Excepted).....	500	17.4
104	Diarrhoea and Enteritis (Under two years).....	1,679	58.7
105	Diarrhoea and Enteritis (Two Years and over).....	453	15.8
106	Ankylostomiasis.....		
107	Intestinal parasites.....	4	.1
108	Appendicitis and Typhlitis.....	354	12.3
109a	Hernia.....	79	2.7
109b	Intestinal Obstruction.....	258	9.0
110	Other Diseases of the Intestines.....	66	2.3
111	Acute Yellow Atrophy of the Liver.....	11	.3
112	Hydatid Tumor of the Liver.....	1	.03
113	Cirrhosis of the Liver.....	373	13.0
114	Biliary Calculi.....	116	4.0
115	Other Diseases of the Liver.....	185	6.4
116	Diseases of the Spleen.....	6	.2
117	Simple Peritonitis (Non-puerperal).....	77	2.6
118	Other Diseases of the Digestive System (Cancer and Tuberculosis Excepted).....	13	.4
VI. NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ANNEXA.			
119	Acute Nephritis.....	278	9.9
120	Bright's Disease.....	2,748	96.0
121	Chyluria.....		
122	Other Disease of the Kidney and Annexa.....	66	2.3
123	Calculi of the Urinary Passages.....	28	.9
124	Diseases of the Bladder.....	59	2.0
125	Diseases of the Urethra, Urinary Abscess, etc.....	5	.1
126	Diseases of the Prostate.....	151	5.2
127	Non-Venerereal Diseases of the Male Genital Organs.....	3	.1
128	Uterine Hemorrhage (Non-Puerperal).....	2	.06
129	Uterine Tumor (Non-Cancerous).....	64	2.2
130	Other Diseases of the Uterus.....	20	.6
131	Cysts and Tumors of the Ovary.....	37	1.2
132	Salpingitis and Other Diseases of the Female Genital Organs.....	61	2.1
133	Non-Puerperal Diseases of the Breast (Cancer excepted).....		

TABLE No. 1—Continued.

Classification Number.	CAUSE OF DEATH.	Number of Deaths.	Death Rate Per 100,000.
<b>VII. THE PUERPERAL STATE.</b>			
134	Accidents of Pregnancy .....	29	1.0
135	Puerperal Hemorrhage .....	30	1.0
136	Other Accidents of Labor .....	36	1.2
137	Puerperal Septicaemia .....	224	7.8
138	Puerperal Albuminuria and Convulsions .....	97	3.3
139	Puerperal Phlegmasia Alba Dolens, Embolus, Sudden Death .....	22	.7
140	Following Childbirth (not otherwise defined) .....	5	.1
141	Puerperal Diseases of the Breast .....		
<b>VIII. DISEASES OF THE SKIN AND OF THE CELLULAR TISSUE.</b>			
142	Gangrene .....	76	2.6
143	Furuncle .....	15	.5
144	Acute Abscess .....	13	.4
145	Other Diseases of the Skin and Annexa .....	13	.4
<b>IX. DISEASES OF THE BONES AND OF THE ORGANS OF LOCOMOTION.</b>			
146	Diseases of the Bones (Tuberculosis excepted) .....	59	2.0
147	Diseases of the Joints (Tuberculosis and Rheumatism excepted) .....	5	.1
148	Amputation .....		
149	Other Diseases of the Organs of Locomotion .....	2	.06
<b>X. MALFORMATIONS.</b>			
150a	Hydrocephalus .....	41	1.4
150b	Congenital Malformation of the Heart .....	378	13.2
150c	Other Congenital Malformations .....	127	4.4
<b>XI. EARLY INFANCY.</b>			
151a	Premature Birth .....	1,258	43.9
151b	Congenital Debility, Atrophy, Marasmus, etc. ....	156	5.4
152a	Injuries at Birth .....	185	6.4
152b	Other Causes Peculiar to Early Infancy .....	166	5.8
153	Lack of Care .....	7	.2
<b>XII. OLD AGE.</b>			
154	Senility .....	250	8.7
<b>XIII. AFFECTION PRODUCED BY EXTERNAL CAUSES.</b>			
155	Suicide by Poison .....	180	6.2
156	Suicide by Asphyxia .....	12	.4
157	Suicide by Hanging or Strangulation .....	69	2.4
158	Suicide by Drowning .....	28	.9
159	Suicide by Firearms .....	155	5.4
160	Suicide by Cutting or Piercing Instruments .....	25	.8
161	Suicide by Jumping From High Places .....	5	.1
162	Suicide by Crushing .....	4	.1
163	Other Suicides .....	6	.2
164	Poisoning by Food .....	27	.9
165	Other Acute Poisonings .....	44	1.5
166	Conflagration .....	21	.7
167	Burns (Conflagration excepted) .....	139	4.8
168	Absorption of Deleterious Gases( Conflagration excepted) .....	76	2.6
169	Accidental Drowning .....	186	6.5
170	Traumatism by Firearms .....	69	2.4

TABLE No. 1—Continued.

Classification Number.	CAUSE OF DEATH.	Number of Deaths.	Death Rate Per 100,000.
171	Traumatism by Cutting or Piercing Instruments.....	14	.4
172	Traumatism by Fall.....	464	16.2
173a	Traumatism in Mines.....	54	1.8
173b	Traumatism in Quarries.....	2	.06
174	Traumatism by Machines.....	48	1.6
175a	Railroad Accidents and Injuries.....	463	16.1
175b	Street Car Accidents and Injuries.....	95	3.3
175c	Automobile Accidents and Injuries.....	167	5.8
175f	Bicycle Accidents and Injuries.....	2	.06
175g	Motorcycle Accidents and Injuries.....	17	.5
175d	Injuries from Other Vehicles.....	64	2.2
175e	Other Crushings.....	14	.4
176	Injuries by Animals.....	36	1.2
177	Starvation.....		
178	Excessive cold.....	17	.5
179	Effects of Heat.....	96	3.3
180	Lightning.....	20	.6
181	Electricity (lightning excepted).....	33	1.1
182	Homicide by firearms.....	96	3.3
183	Homicide by Cutting or Piercing Instruments.....	17	.5
184	Homicide by Other Means.....	30	1.0
185	Fractures (cause not specified).....	1	.03
186	Other External Violence.....	101	3.5
XIV. ILL-DEFINED DISEASES.			
187	Ill-defined Diseases.....		
188	Sudden Death.....		
189a	Ill-defined.....	9	.3
189b	Not Specified or Unknown.....	11	.3
Total Deaths from all Causes.....		38,249	1,337.9

TABLE No. 2.

*Deaths from all Causes by Months, Ages, Color, Nationality and Conjugal Condition, for the Year Ending December 31, 1916. International Classification.*

	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
I. GENERAL DISEASES.												
1. Typhoid Fever.....	1,255	1,026	1,026	908	839	744	752	800	817	848	737	799
2. Typhus Fever.....	28	32	36	40	28	16	38	86	122	96	45	37
3. Relapsing Fever.....	2		1	1	4	3	3	4	11	8	2	2
4. Malaria.....			1									
5. Smallpox.....			1									
6. Measles.....	13	24	26	45	38	29	13	1	2	3	5	5
7. Scarlet Fever.....	13	14	11	14	7	4	1	1	9	4	7	11
8. Whooping Cough.....	27	20	30	24	40	26	23	26	8	13	9	6
9. Diphtheria and Croup.....	40	24	18	21	10	10	5	19	40	66	69	64
10. Influenza.....	432	236	131	55	28	17	7	3	7	4	23	25
11. Miliary Fever.....												
12. Asiatic Cholera.....												
13. Cholera Nostris.....												
14. Dysentery.....	6	5	5	4	1	2	26	43	46	19	8	1
15. Plague.....												
16. Yellow Fever.....												
17. Leprosy.....												
18. Erysipelas.....	13	17	11	5	8	3	6	3	1	5	6	6
19. Other Epidemic Diseases.....				2	2			1		2		
20. Purulent Infection and Septicæmia.....	7	4	5	5	5	6	6	4	5	18	14	16
21. Glanders.....												
22. Anthrax.....												
23. Rabies.....												
24. Tetanus.....												
25. Mycoses.....	2	1	2	2	1	3	9	3	5	5	3	1



[illegible]

TABLE No. 2—Continued.

	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
62. Locomotor Ataxia.....	6	7	9	4	6	5	5	6	4	4	3	7
63. Other Diseases of the Spinal Cord.....	15	23	14	16	10	9	15	7	12	9	10	3
A. Acute Anterior Poliomyelitis.....	279	222	291	224	234	189	241	204	179	202	211	263
B. Other Diseases of the Spinal Cord.....												
64. Cerebral Hemorrhage, Apoplexy.....	6	8	8	8	7	4	4	4	4	10	3	2
65. Softening of the Brain.....	27	26	18	9	9	8	5	4	4	7	9	7
66. Paralysis Without Specified Cause.....	33	13	21	24	20	21	21	23	16	22	17	24
67. General Paralysis of the Insane.....	6	4	7	6	5	7	12	9	7	3	2	5
68. Other Forms of Mental Alienation.....	17	8	14	14	13	7	12	17	10	9	8	14
69. Epilepsy.....												
70. Convulsions (Non-puerperal).....		7							1			
71. Convulsions of Infants.....	3	1	4	1	1	3	4	3	5			
72. Chorea.....	1	1			3		1	1			1	1
73. Neuritis and Neuritis.....	1						2	4		2	1	4
74. Other Diseases of the Nervous System.....	4	3	5	7	2	7	6	8	2		8	5
75. Diseases of the Eyes and their Annexa.....	1											
76. Diseases of the Ears.....	11	4	12	1	10	2	3	3	1	1	2	1
III. DISEASES OF THE CIRCULATORY SYSTEM.....	611	505	555	529	461	415	428	414	390	449	427	506
77. Pericarditis.....	7	3	2	3		3	4	2	1	2	2	4
78. Acute Endocarditis.....	13	12	21	14	16	16	8	13	10	15	13	22
79. Organic Diseases of the Heart.....	458	380	415	400	331	296	315	299	289	333	331	376
80. Angina Pectoris.....	23	24	23	29	24	22	20	21	30	23	24	36
81. Diseases of the Arteries, Atheroma, Aneurysm, etc.....	90	64	79	71	58	67	70	70	55	67	46	58
82. Embolism and Thrombosis.....	13	8	6	10	9	9	7	8	4	5	7	5
83. Diseases of the Veins (Varices, Hemorrhoids, Phlebitis, etc.).....	2	2	3		2		3			2	2	2
84. Diseases of the Lymphatic System (Lymphangitis, etc.).....	4	1	1	2	1	1	1	1		1	1	1
85. Hemorrhage, Other Diseases of the Circulatory System.....	1	1	5						1	1	2	1
IV. DISEASES OF THE RESPIRATORY SYSTEM.....	790	491	544	443	258	127	96	100	145	213	332	422
86. Diseases of the Nasal Fossae.....	1		1								2	
87. Diseases of the Larynx.....	4	3	3		1	2	4	2	4	4	6	4

88. Diseases of the Thyroid Body.....	2	3	4	4	3	2	2	7	1	4	2	1
89. Acute Bronchitis.....	24	19	15	27	10	4	1	6	9	14	14	20
90. Chronic Bronchitis.....	28	17	34	26	14	4	11	7	10	13	20	19
91. Broncho Pneumonia.....	234	148	159	133	95	46	23	21	50	48	81	144
92. Pneumonia.....	368	218	235	183	78	41	27	36	46	85	148	174
A. Lobar Pneumonia.....	103	66	78	50	36	13	17	4	18	31	42	39
B. Pneumonia (Undefined).....	8	4	4	5	7	8	2	5	1	6	4	7
93. Pleurisy.....	5	3	.....	.....	2	1	1	2	1	.....	4	4
94. Pulmonary Congestion, Pulmonary Apoplexy.....	11	9	10	10	10	4	3	6	2	4	7	4
95. Gangrene of the Lung.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
96. Asthma.....	.....	.....	1	.....	2	2	1	2	2	2	1	2
97. Pulmonary Emphysema.....	2	1	.....	2	2	2	1	2	2	2	1	3
98. Other Diseases of the Respiratory System (Tuberculosis Excepted).....	251	239	280	276	289	273	563	614	639	420	272	238
V. DISEASES OF THE DIGESTIVE SYSTEM.												
99. Diseases of the Mouth and Annexa.....	1	4	4	2	4	1	1	.....	1	3	1	3
100. Diseases of the Pharynx.....	.....	.....	3	2	5	5	3	3	6	3	3	5
101. Diseases of the Oesophagus.....	12	5	1	2	1	2	3	2	1	1	.....	1
102. Ulcer of the Stomach.....	31	35	37	13	11	7	9	4	11	8	7	5
103. Other Diseases of the Stomach (Cancer Excepted).....	.....	.....	.....	32	44	39	49	50	49	56	38	40
104. Diarrhoea and Enteritis (Under 2 Years).....	57	57	71	73	71	82	274	351	331	191	75	46
105. Diarrhoea and Enteritis (2 Years and Over).....	21	19	24	18	21	24	78	75	90	42	25	16
106. Acute Intestinal Inflammation.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
107. Intestinal Parasites.....	1	1	.....	.....	.....	1	.....	.....	.....	1	.....	.....
108. Appendicitis and Typhlitis.....	36	22	26	32	25	24	42	36	42	23	20	26
109. Hernia, Intestinal Obstruction.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
A. Hernia.....	7	2	4	10	11	5	3	8	12	5	7	5
B. Intestinal Obstruction.....	22	19	21	18	22	15	33	20	17	23	19	29
110. Other Diseases of the Intestines.....	10	8	6	6	6	3	4	5	4	7	3	4
111. Acute Yellow Atrophy of the Liver.....	.....	1	.....	1	.....	1	2	3	1	.....	1	1
112. Hydatid Tumor of the Liver.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
113. Cirrhosis of the Liver.....	25	34	38	38	34	28	23	24	34	27	40	30
114. Biliary Calculi.....	10	14	10	6	9	11	10	11	9	5	11	10
115. Other Diseases of the Liver.....	15	10	18	19	18	18	19	13	20	13	13	9
116. Diseases of the Spleen.....	.....	.....	.....	.....	1	.....	.....	3	1	.....	.....	.....
117. Simple Peritonitis (Non-purulent).....	3	6	9	4	6	6	7	5	9	11	4	7
118. Other Diseases of the Digestive System (Cancer and Tuberculosis excepted).....	.....	1	1	.....	.....	1	2	1	1	1	4	1
VI. NON-VENEREAL DISEASES OF THE GENITO-URINARY SYSTEM AND ANNEXA.												
119. Acute Nephritis.....	321	276	314	308	309	273	316	273	257	296	286	293
120. Bright's Disease.....	20	24	25	27	16	21	32	21	17	25	22	28
.....	253	218	237	242	251	219	238	212	197	223	229	231

TABLE No. 2—Continued.

	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
121. Chyluria.....	4	4	10	3	7	7	11	3	5	7	1	4
122. Other Diseases of the Kidneys and Annexa.....	3	2	2	2	5	2	3	2	1	3	2	3
123. Calculi of the Urinary Passages.....												
124. Diseases of the Bladder.....	6	2	6	4	3	6	4	8	5	4	5	6
125. Disease of the Urethra, Urinary Abscess, etc.												
126. Disease of the Prostate.....	16	15	14	9	10	5	12	10	20	15	16	9
127. Nonvenereal Diseases of the Male Genital Organs.....	1		1					1			1	1
128. Uterine Hemorrhage (Nonpuerperal).....												
129. Uterine Tumor (Non-cancerous).....	6	2	6	6	11	3	3	4	4	12	4	3
130. Other Diseases of the Uterus.....	4	1	2		1	2	2	5	2			1
131. Cysts and Other Tumors of the Ovary.....	3	4	1	3	4	6	6	1	2	3		4
132. Syphilis and Other Diseases of the Female Genital Organs.....	5	3	8	8	4	4	7	6	3	4	6	3
133. Nonpuerperal Diseases of the Breast (Cancer excepted).....												
VII. THE PUERPERAL STATE.	47	35	51	38	37	32	48	30	20	38	33	34
134. Accidents of Pregnancy.....	3	2	1	4	1	3	3	6	4		2	
135. Puerpera. Hemorrhage.....	5	2	4	4	1	2	5	1	1	2	2	3
136. Other Accidents of Labor.....	6		6	6	4	3	1	5	1	1	3	5
137. Puerperal Septicæmia.....	19	17	32	21	26	18	20	12	9	20	12	18
138. Puerperal Albuminuria and Convulsions.....	10	9	7	7	5	7	10	7	4	13	12	6
139. Puerperal Phlegmasia, Alba Dolens, Embolus, Sudden Death.....	4	5	1	1			3	3	1	2	1	1
140. Following Childbirth (not otherwise defined).....						1	2				1	1
141. Puerperal Diseases of the Breast.....												
VIII. DISEASES OF THE SKIN AND VELLULAR TISSUE.	14	10	13	7	6	9	12	12	10	5	12	7
142. Gangrene.....	9	7	7	5	5	7	9	6	5	3	8	5
143. Furuncle.....	2		2	2		1	3	2	1		1	1
144. Acute Abscess.....	1	2	2		1	1		2	2		1	1
145. Other Diseases of the Skin and Annexa.....	2	1	2					2	2	2	2	

## IX. DISEASES OF THE BONES AND ORGANS OF LOCOMOTION.

146. Diseases of the Bones (Tuberculosis excepted).  
 147. Diseases of the Joints (Tuberculosis and Rheumatism excepted).  
 148. Amputations.  
 149. Other Diseases of the Organs of Locomotion.

## X. MALFORMATIONS.

150. Congenital Malformations (Stillbirths not included).  
 A. Hydrocephalus.  
 B. Congenital Malformation of the Heart.  
 C. Other Congenital Malformations.

## XI. EARLY HISTORY.

151. Congenital Debility, Icterus and Sclerema.  
 A. Premature Birth.  
 B. Congenital Debility, Atrophy, Marasmus, etc.  
 152. Other Causes Peculiar to Early Infancy.  
 A. Injuries at Birth.  
 B. Other Causes Peculiar to Early Infancy.  
 153. Lack of Care.

## XII. OLD AGE.

154. Senility.

## XIII. AFFECTIONS PRODUCED BY EXTERNAL CAUSES.

155. Suicide by Poison.  
 156. Suicide by Asphyxia.  
 157. Suicide by Hanging or Strangulation.  
 158. Suicide by Drowning.  
 159. Suicide by Firearms.  
 160. Suicide by Cutting or Piercing Instruments.  
 161. Suicide by Jumping from High Places.  
 162. Suicide by Crushing.  
 163. Other Suicides.  
 164. Poisoning by Food.  
 165. Other Acute Poisonings.  
 166. Congestion.  
 167. Burns (Congestion excepted).  
 168. Absorption of Deleterious Gases (Congestion excepted).

	7	9	2	11	6	7	2	6	3	4	5	4
146. Diseases of the Bones (Tuberculosis excepted).	7	9	2	11	6	7	2	6	3	4	5	4
147. Diseases of the Joints (Tuberculosis and Rheumatism excepted).	7	9	2	11	4	7	1	3	3	4	4	4
148. Amputations.					1		1	3				
149. Other Diseases of the Organs of Locomotion.					1						1	
X. MALFORMATIONS.	40	55	54	52	43	35	51	46	31	52	38	49*
150. Congenital Malformations (Stillbirths not included).												
A. Hydrocephalus.	3	8	4	5	1	4	3	4	1	5	2	1
B. Congenital Malformation of the Heart.	30	36	39	38	24	26	33	35	23	31	26	37
C. Other Congenital Malformations.	7	11	11	9	18	5	15	7	7	16	10	11
XI. EARLY HISTORY.	189	186	176	162	135	114	128	149	129	130	133	161
151. Congenital Debility, Icterus and Sclerema.												
A. Premature Birth.	120	122	121	111	97	88	87	111	88	94	102	117
B. Congenital Debility, Atrophy, Marasmus, etc.	19	16	16	15	11	6	12	16	13	11	9	12
152. Other Causes Peculiar to Early Infancy.												
A. Injuries at Birth.	21	21	19	16	13	13	16	13	15	12	8	18
B. Other Causes Peculiar to Early Infancy.	9	25	20	19	13	7	11	9	13	13	14	13
153. Lack of Care.		2		1	1		2					1
XII. OLD AGE.	31	13	25	25	21	22	25	20	11	22	17	18
154. Senility.	31	13	25	25	21	22	25	20	11	22	17	18
XIII. AFFECTIONS PRODUCED BY EXTERNAL CAUSES.	207	178	192	201	231	250	383	324	259	233	214	225
155. Suicide by Poison.	15	13	16	23	13	13	15	19	22	17	6	9
156. Suicide by Asphyxia.		1	1	1	1		1	2	1		4	
157. Suicide by Hanging or Strangulation.	6	4	7	5	8	9	6	8	5	2	5	4
158. Suicide by Drowning.	4	2	3	3	4	4	3	3	2			1
159. Suicide by Firearms.	13	9	11	13	13	13	12	12	21	18	10	10
160. Suicide by Cutting or Piercing Instruments.	3	3	3	1	4	3	2	2	2	1		1
161. Suicide by Jumping from High Places.	1		1	2	1							
162. Suicide by Crushing.		1			1	2			1			1
163. Other Suicides.							2	4	2	2	2	
164. Poisoning by Food.	3		5	1		6	2					
165. Other Acute Poisonings.												
166. Congestion.	3	5	2	3	8	4	4	3	4	4	3	1
167. Burns (Congestion excepted).	4	2	3	1	2		3			1	3	2
168. Absorption of Deleterious Gases (Congestion excepted).	14	16	12	11	12	6	14	9	10	9	14	12
	10	5	6	1	6	7	3	7	7	6	12	6

TABLE No. 2—Continued.

	Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
169. Accidental Drowning	7	7	2	8	30	26	54	33	10	4	1	4
170. Traumatism by Firearms	10	3	3	3	1	4	5	2	3	10	10	10
171. Traumatism by Cutting or Piercing Instruments	1	1	1	3	2	2	2	1	1	1	44	37
172. Traumatism by Fall	38	39	38	29	34	40	49	39	41	36	44	37
173. Traumatism in Mines and Quarries												
A. Traumatism in Mines	4	7	2	2	3	2	5	7	6	1	5	10
B. Traumatism in Quarries												
174. Traumatism by Machines	3	1	1	6	4	1	3	6	2	5	8	5
175. Traumatism by Other Crushing												
A. Railroad Accidents and Injuries	36	27	22	36	31	32	57	40	38	48	31	65
B. Street Car Accidents and Injuries	6	5	2	2	10	6	9	16	9	9	11	10
C. Automobile Accidents and Injuries	4	4	8	11	12	18	17	30	26	17	14	6
D. Injuries by Other Vehicles	2	5	4	3	5	8	11	9	3	8	5	1
E. Landslide and Other Crushing												
F. Bicycles		2	2	1		1	1	2	2	3	1	
G. Motorcycles	1		1		1	1	3	3	6	1	1	
176. Injuries by Animals	4			4	1	7	2	9	3	3	2	1
177. Starvation												
178. Excessive Cold	2	2	6	1			61	32			1	5
179. Effects of Heat						3	10					
180. Lightning					1	3	5	2	1	3	1	1
181. Electricity (Lightning excepted)	1	1	1	2	3	8	5	10	6	11	4	10
182. Homicide by Firearms	5	5	10	11	7	8	9	10	6	11	4	1
183. Homicide by Cutting or Piercing Instruments												
184. Homicide by Other Means	2	1	1	2	1	1	3		2	1	2	1
185. Fractures (cause not specified)	1		4	6	2	3	1		4	3	3	3
186. Other External Violence	4	5	12	8	7	11	5	9	13	8	11	8
XIV. ILL DEFINED DISEASES.												
187. Ill Defined Organic Disease	3	4	2	3			1		3	1	2	1
188. Sudden Death												
189. Ill Defined or Nonspecified												
A. Ill Defined	1	1	1	2					1	1	2	1
B. Not Specified or Unknown	2	3	1	1			1		2	1		



TABLE No. 2—Continued.

	Un- der 1	1	2	3	4	Un- der 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74
26. Pellagra.....													2	1			1			
27. Beriberi.....	31	16	7	3	7	64	30	59	255	399	439	340	305	227	185	166	164	135	182	127
28. Tuberculosis of the lungs.....	5	4	1	1	2	13	2	4	6	6	6	6	14	7	5	4	3	2	2	4
29. Acute Miliary Tuberculosis.....	34	36	12	10	6	98	24	13	8	10	5	3	6			1	3	2	3	1
30. Tuberculous Meningitis.....																				
31. Abdominal Tuberculosis.....	11	4	2	2	2	21	3	11	12	25	17	13	19	10	17	8	18	13	13	13
32. Pott's Disease.....		1		1	1	3	2	1	3	5	2	1	3	2	3	4	3	4	2	1
33. White Swellings.....			1	2		3	2	2	2	1	2	1				2	2	3	2	1
34. Tuberculosis of Other Organs.....	5	1	1			7	3	1	3	1	5	6	6	4	3	1	6	2	4	4
35. Disseminated Tuberculosis.....	3	4				7	2		3	5	3	2	2	3	3	2	2	4	1	1
36. Rickets.....	9	5				14			1	10	13	14	24	24	12	15	10	19	11	3
37. Syphilis.....	56	4	3		1	64	4	2	1	4	1			1	1	1	4	11	8	16
38. Gonorrheal Infection.....																				
39. Cancer of the Buccal Cavity.....	1					1	1		2	2	5	12	21	44	51	99	118	147	149	139
40. Cancer of the Stomach, Liver.....																				
41. Cancer of the Peritoneum, Intestines, Rectum.....								1		3	6	5	13	11	21	34	32	40	32	38
42. Cancer of the Female Genital Organs.....									1	7	12	21	21	45	41	70	53	37	39	24
43. Cancer of the Breast.....									1	2	3	14	18	26	28	28	28	21	16	18
44. Cancer of the Skin.....												3	3	5	5	6	8	11	22	20
45. Cancer of Other Organs and Organs Not Specified.....	3		1	2		6	2	2	2	3	4	6	15	16	23	30	36	38	44	36
46. Other Tumors (Tumors of the Female Genital Organs excepted).....	1					1				7	5	5	1	1	1	1	1	2		2
47. Acute Arterial Rheumatism.....					5	5	13	24	13	7				5	6	12	6	6	12	12
48. Chronic Rheumatism and Gout.....								3	1					1	1	2		1	6	5
49. Scoury.....																				
50. Diabetes.....	1	2	1	2	1	7	7	11	5	11	10	12	17	14	25	45	52	73	87	56
51. Exophthalmic Goitre.....										2	4	8	3	2	9	7	6	6	5	4
52. Addison's Disease.....										1	2	1	3							
53. Leucæmia.....	4	1		1	1	7	6	1	2	2	2	1	3	4	3	2	2	5	3	3
54. Anæmia, Chlorosis.....	5	1	2	1	2	11	2	4	1	2	4	4	8	8	6	29	15	17	18	15
55. Other General Diseases.....	13		2			13				1				1			1	3	1	



[illegible]

TABLE No. 2—Continued.

	Un- der 1	1	2	3	4	Un- der 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74
IV. DISEASES OF THE RESPIRATORY SYSTEM.																				
86. Diseases of the Nasal Fossae.	729	220	104	52	32	1137	82	41	73	76	82	78	115	114	128	130	161	250	282	316
87. Diseases of the Larynx.	1	3	2	5	2	17	5	1						1	1	1	1	2		
88. Diseases of the Thyroid Body.	5	3	2	5	2	17	5	1						1	1	1	1	1	4	
89. Acute Bronchitis.	3	1				4				2	1	1	4	1	6	3	3	2	4	
90. Chronic Bronchitis.	64	15	6	2	4	91	2			1	1	1	1	1	3	2	7	14	21	36
91. Broncho Pneumonia.	415	123	54	21	13	626	25	8	6	7	13	9	11	12	13	19	25	44	49	55
92. Pneumonia.																				
A. Lobar Pneumonia.	141	43	29	13	8	232	33	24	54	51	45	44	72	77	87	81	93	132	139	146
B. Pneumonia (Undefined).	92	30	10	7	3	142	16	7	11	9	14	14	19	9	9	13	21	29	32	46
93. Pleurisy.	2	3	2	2	2	11		1	2	2	4	4	3	3	2	4	2	8	5	5
94. Pulmonary Congestion, Pulmonary Apoplexy.	2	1				3	1								1	1			4	4
95. Gangrene of the Lung.						4				1	1			4	5	1	1	1	17	12
96. Asthma.	2	1	1	1		3				1	1	1				1	7	14		1
97. Pulmonary Emphysema.	2																			
98. Other Diseases of the Respiratory System (Tuberculosis excepted).				1						1			2		3	1	2	1	2	3
V. DISEASES OF THE DIGESTIVE SYSTEM.																				
99. Diseases of the Mouth and Anæxa.	1579	444	130	59	28	2240	85	55	71	72	84	81	118	122	138	143	172	192	172	192
100. Diseases of the Pharynx.	9	2			1	12				1	1	1	1	1	1	1	1	1	2	
101. Diseases of the Oesophagus.	4	6		1	3	14	10		4	6		1	1	1						
102. Ulcer of the Stomach.	1	1	2		1	5		1		1	3	6	13	7	8	8	4	10	14	1
103. Other Diseases of the Stomach (Cancer excepted).	214	26	6	4	3	253	4	2	2	7	4	5	10	10	15	20	18	15	19	33
104. Diarrhoea and Enteritis (Under 2 Years).	1284	395				1679														
105. Diarrhoea and Enteritis (2 Years and Over).			111	38	11	160	25	6	4	3	6	3	9	5	12	9	17	14	18	35
106. Ankylostomiasis.																				
107. Intestinal Parasites.		1	1			2		1	1											
108. Appendicitis and Typhilitis.		4	2	9	3	18	23	40	43	29	40	24	28	29	23	19	15	11	4	4
109. Hernia. Intestinal Obstruction.																				
A. Hernia.	6	6	3	5	5	49	13	1	6	7	7	12	10	5	6	9	8	6	7	7
B. Intestinal Obstruction.	30																			
110. Other Diseases of the Intestines.	6		1	1	0	8	2	1	2	3	2	1	5	4	2	2	2	6	10	6



TABLE No. 2—Continued.

	Un- der 1	1	2	3	4	Un- der 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74
<b>VIII. DISEASES OF THE SKIN AND CELLULAR TISSUE.</b>																				
142. Gangrene.....	11	3	1	1		16	2	3	1	4	1	5	2	2	2	4	4	1	5	16
143. Furuncle.....	1					1	1	1		3		1	2		1	1	1	1	5	13
144. Acute Abscess.....	1	1	1			3	1		1		1	2		1	1	1	1		2	
145. Other Diseases of the Skin and Annexa.....	8	2		1		4		2		1		1	4	1	1	1	2			1
<b>IX. DISEASES OF THE BONES AND ORGANS OF LOCOMOTION</b>																				
146. Diseases of the Bones (Tuberculosis excepted).....	8	3	1	1	1	14	6	2	5	1	4	2	2	1	2	5	4	6	4	2
147. Diseases of the Joints (Tuberculosis and Rheumatism excepted).....	8	3	1	1	1	14	6	2	4	1	4	2	1	1	2	5	3	6	3	1
148. Amputations.....													1				1		1	1
149. Other Diseases of the Organs of Locomotion.....							1													
<b>X. MALFORMATIONS.</b>																				
150. Congenital Malformations (Stillbirths not included).....	540	3	1			544	1				1									
A. Hydrocephalus.....	38	2	1			41														
B. Congenital Malformation of the Heart.....	375	1				376	1				1									
C. Other Congenital Malformations.....	127					127														
<b>XI. EARLY HISTORY.</b>																				
151. Congenital Debility, Icterus, and Sclerema.....	1771		1			1772														
A. Premature Birth.....	1258					1258														
B. Congenital Debility, Atrophy, Marasmus, etc.....	156					156														
152. Other Causes Peculiar to Early Infancy.....	184		1			185														
A. Injuries at Birth.....	166					166														
B. Other Causes Peculiar to Early Infancy.....	7					7														
153. Lack of Care.....																2		3	6	14
<b>XII. OLD AGE.</b>																				
154. Senility.....																2		3	6	14

## XIII. AFFECTIONS PRODUCED BY EXTERNAL CAUSES.

	66	41	37	28	27	190	94	102	176	230	242	219	221	181	184	191	158	137	101
155. Suicide by Poison.....								2	10	16	29	17	17	12	14	12	16	12	4
156. Suicide by Asphyxia.....								1	1	2	2	2	1	2	1	1	2	1	
157. Suicide by Hanging or Strangulation.....								1	2	2	5	1	7	6	9	4	13	4	1
158. Suicide by Drowning.....								2	9	15	11	18	14	14	16	15	9	4	1
159. Suicide by Firearms.....								2	9	15	11	18	14	14	16	15	9	18	5
160. Suicide by Cutting or Piercing Instruments.....										1	1	2	2	1	2	5	3	5	4
161. Suicide by Jumping from High Places.....												1	1					1	1
162. Suicide by Crushing.....											1	1	1		2	1	1	1	1
163. Other Suicides.....	3	2	2			7	2	1	1	2					1	1	1	2	4
164. Poisoning by Food.....																			
165. Other Acute Poisonings.....	5	3	4	1	3	16	2	1		4	8	2	2		3	2	1	1	1
166. Confusions.....	1	2	2	1	1	6		1		1	2	1	1		2	1	1	1	1
167. Burns (Conflagration excepted).....	4	17	13	10	10	54	11	2	5	8	7	7	7	4	4	6	6	3	8
168. Absorption of Deleterious Gases (Conflagration excepted).....	31		2			33	1	4	2	9	4	5	3	2	1	4	1	4	2
169. Accidental Drowning.....	3	5	1	3	3	15	18	28	35	23	17	12	9	6	4	11	3	1	2
170. Traumatism by Firearms.....			1	1	2	4	6	13	16	5	5	4	4	2	5	2	2	1	3
171. Traumatism by Cutting or Piercing Instruments.....							1	1	2	2	2	2	1	2	2	2	2	2	2
172. Traumatism by Fall.....	3	4	1	4		12	6	4	12	9	8	11	10	16	14	22	23	23	45
173. Traumatism in Mines and Quarries.....																			
A. Traumatism in Mines.....										6	7	10	4	4	5	6	3	6	2
B. Traumatism in Quarries.....										2	7	6	8	5	2	3	1	1	3
174. Traumatism by Machines.....							1	2	4	5	7	6	8	5	2	3			
175. Traumatism by Other Crushing.....	1	5		2	2	10	6	8	32	51	55	49	59	42	34	29	22	18	8
A. Railroad Accidents and Injuries.....				1	1	1	5	2	7	11	11	8	11	9	4	13	7	4	1
B. Street Car Accidents and Injuries.....																			
C. Automobile Accidents and Injuries.....	1		4	3	3	11	18	9	11	9	15	7	7	13	16	11	16	11	5
D. Injuries by Other Vehicles.....			1		1	2	5	2	1	3	1	6	2	4	7	7	5	7	4
E. Landslide and Other Crushing.....		1				1	1	1	1	1	1	5	5	1	1	1	2	1	
F. Bicycles.....																			
G. Motorcycles.....			1			1	1	1	1	6	5		1			3			
176. Injuries by Animals.....			1		1	2	5	2		2	3	2	2	1	1	2	3	5	1
177. Starvation.....																			
178. Excessive Cold.....	1					1						1	1	8	4	2	1	1	1
179. Effects of Heat.....	4				1	5		4	3	5	5	14	8	7	5	7	3	9	5
180. Lightning.....								3	2	5		1	3		1	1	1	1	1

TABLE No. 2—Continued.

	Un- der 1	1	2	3	4	Un- der 5	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74
181. Electricity (Lightning excepted) . . . . .								3	2	4	3	6	3	3	3	1	1			
182. Homicide by Firearms . . . . .		1				1	2	1	6	15	14	15	12	11	9	8	2	2		2
183. Homicide by Cutting or Piercing Instruments . . . . .								2	2	3	3	4	2	2		3			1	
184. Homicide by Other Means . . . . .	2					2	1	1	1	3	4	3	2	2	3	3	3	1		
185. Fractures (cause not specified) . . . . .																				
186. Other External Violence . . . . .	7	1	4	2	1	15	6	5	8	8	9	5	9	5	4	7	7	5	6	2
XIV. ILL DEFINED DISEASES . . . . .	7	4				11	1				1		1		1		1			3
187. Ill Defined Organic Disease . . . . .																				
188. Sudden Death . . . . .																				
189. Ill Defined or Nonspecified . . . . .		3				3											1			
A. Ill Defined . . . . .						8	1													3
B. Not Specified or Unknown . . . . .	7	1									1		1							



TABLE No. 2—Continued.

	75-79	80-84	85-89	90-94	95 and over	Un- known	White	Col- ored	In- dians	Amer- ican	For- eign	Not Re- port- ed	Single	Mar- ried	Wid- owed or Di- vorced	Not Re- port- ed	Total Deaths Includ- ing Non- resi- dents	Non- Resi- dent
26. Phagm.							4				4		1	3			4	1
27. Beriberi																		
28. Tuberculosis of the lungs	49	42	8	2		1	2,934	245		2,913	265	1	1,101	1,637	439	2	3,179	93
29. Acute Miliary Tuberculosis	1						74	6		75	5		41	32	7		80	4
30. Tuberculous Meningitis							173	4		170	7		155	18	4		177	4
31. Abdominal Tuberculosis	7	2	1	1			206	18		215	9		82	110	32		224	14
32. Pott's Disease							36	1		36	1		18	14	5		37	1
33. White Swellings		1					21			21			10	9	2		21	2
34. Tuberculosis of Other Organs	2						61	3		63	1		30	25	9		64	3
35. Disseminated Tuberculosis	1						38	3		33	2	1	16	19	6		41	1
36. Rickets		1					17			17			16		1		17	1
37. Syphilis	1						202	25		213	14		104	90	33		227	11
38. Gonococcus Infection							8			8				6	2		8	
39. Cancer of the Buccal Cavity	15	4	1	3			79			71	8		6	50	23		79	2
40. Cancer of the Stomach, Liver	112	70	9	2			973	11		844	139	1	77	601	305	1	964	28
41. Cancer of the Peritoneum, Intestines, Rectum	22	19	3				274	6		258	21	1	21	189	70		280	17
42. Cancer of the Female Genital Organs	14	1	3	1			353	16		345	22	2	21	242	106		369	22
43. Cancer of the Breast	16	9	5	1			202	4		198	8		24	120	62		206	5
44. Cancer of the Skin	23	16	15	2			140			130	8	2	18	64	57	1	140	4
45. Cancer of Other Organs and Organs Not Specified	31	21	9	1			320	5		292	33		35	204	85	1	325	17
46. Other Tumors (Tumors of the Female Genital Organs excepted)							10			9			2	5	3		10	
47. Acute Articular Rheumatism	1			3			154	3		140	17		69	68	19	1	157	6
48. Chronic Rheumatism and Gout	7	4	1				30	3		33			7	6	20		33	
49. Scurvy		1					1			1			1				1	
50. Diabetes	35	12	3	1			473	10		439	44		70	295	116	2	483	17
51. Exophthalmic Goitre							62	1		63			16	40	7		63	
52. Addison's Disease							6			6			3	3			6	
53. Leukemia							54	1		54			20	30	5		55	3
54. Anemia, Chlorosis	4	4					153	1		141	12	1	38	99	27		154	5
55. Other General Diseases	1	1					31			29	2		17	12	2		31	



56. Alcoholism (Acute or Chronic)	5	1					130	2	118	14	48	44	38	2	132	4
57. Chronic Lead Poisoning							6		5	1		5	1		6	
58. Other Chronic Occupational Poisonings																
59. Other Chronic Poisonings	2						8		8		2	4	2		8	3
II. DISEASES OF THE NERVOUS SYSTEM AND OF THE ORGANS OF SPECIAL SENSES.																
60. Encephalitis	547	386	160	59	8	2	3,959	101	3,673	379	8	721	1,905	1,427	7	4,090
61. Meningitis	1						34	1	34	1		19	15	1	35	4
A. Simple Meningitis	1						70		70			53	15	2	70	
B. Cerebrospinal Meningitis (Undefined)	1						25		24	1		20	4	1	25	
C. Cerebrospinal Fever							42	3	44	1		43	2		45	2
62. Locomotor Ataxia	7						65	1	64	2		13	41	12	66	1
63. Other Diseases of the Spinal Cord																
A. Acute Anterior Poliomyelitis	26	19	8				51		51			51			51	2
B. Other Diseases of the Spinal Cord	427	311	128	53	7	1	165	7	158	14		87	54		172	6
64. Cerebral Hemorrhage, Apoplexy							2,671	63	2,429	306	4	222	1,381	1,133	3	2,739
65. Softening of the Brain	11	17	5	1			68		66	2		1	30	35	2	68
66. Paralysis Without Specified Cause	34	18	8	2			128	2	119	11		13	50	67	130	3
67. General Paralysis of the Insane	18	11	9	2			244	11	228	25	2	39	154	62	255	76
68. Other Forms of Mental Alienation	5	1	1				69	4	70	3		20	40	13	73	36
69. Epilepsy	3	5				1	141	2	134	7	2	96	30	15	2	143
70. Convulsions (Nonpuerperal)	1						8		8			2	3	3	8	1
71. Convulsions of Infants							25		25						25	
72. Chorea	2						9		9			6			9	1
73. Neuralgia and Neuritis	4	1					20		18	2		11	6		20	
74. Other Diseases of the Nervous System	4	2		1			57		55	2		20	25	12	57	4
75. Diseases of the Eyes and their Annexa							3	1	4			1	2	1	4	
76. Diseases of the Ears	2	1	1		1		64	1	63	2		43	15	7	65	1
III. DISEASES OF THE CIRCULATORY SYSTEM.																
77. Pericarditis	828	643	270	119	19	3	5,476	214	4,970	669	21	715	2,777	2,132	16	5,690
78. Acute Endocarditis	1	3	2	1			31	2	28	4	1	6	16	11	33	1
79. Organic Diseases of the Heart	6	5	3	1			162	11	152	21		64	77	30	2	173
80. Angina Pectoris	533	444	164	68	7	1	4,078	175	3,719	521	13	534	2,108	1,569	12	4,253
81. Diseases of the Arteries, Atherosclerosis, Aneurysm, etc.	40	20	3	2	1		297	2	282	17		21	196	82	299	8
82. Embolism and Thrombosis	188	159	95	45	10	2	775	20	664	124	7	53	321	419	2	785
83. Diseases of the Veins (Varicos, Hemorrhoids, Phlebitis, etc.)	9	11	3	2	1		90	1	80	11		11	44	36	91	6
84. Diseases of the Lymphatic System (Lymphangitis, etc.)							15	1	16			3	10	3	16	
85. Hemorrhage; Other Diseases of the Circulatory System	1	1					16		16			16			16	
							12	2	13	1		5	2		14	

TABLE No. 2—Continued.

	75-79	80-84	85-89	90-94	95 and over	Un- known	White	Col- ored	Amer- ican	For- eign	Not Re- port- ed	Single	Mar- ried	Wid- owed or Di- vorced	Not Re- port- ed	Total Death- Includ- ing Non- Resi- dents	Non- Resi- dents
<b>IV. DISEASES OF THE RESPIRATORY SYSTEM.</b>																	
86. Diseases of the Nasal Fosse	351	304	159	61	22		3,808	153	3,591	366	4	1,611	1,322	1,002	26	3,961	
87. Diseases of the Larynx	1	3		1			4		4			2	2			4	1
88. Diseases of the Thyroid Body							37		37			24	8	5		37	
89. Acute Bronchitis	10	16	11	4	5		35		35			7	23	5		35	4
90. Chronic Bronchitis	42	45	18	6	2		189	4	144	19		93	29	41		163	
							200	6	174	32		9	76	114	7	206	1
91. Broncho Pneumonia	107	76	56	17	4		1,145	37	1,075	107		698	234	250		1,182	40
92. Pneumonia																	
A. Lobar Pneumonia	139	112	45	22	9		1,553	86	1,475	161	3	529	690	407	13	1,639	38
B. Pneumonia (Undefined)	39	39	20	7	1		481	16	466	30	1	207	159	125	6	497	9
93. Pleurisy	3	1	1				60	1	55	6		22	30	9		61	3
94. Pulmonary Congestion, Pulmonary Apoplexy	2	1	5	1			22	1	21	2		4	9	10		23	
95. Gangrene of the Lung							4		4			2				2	
96. Asthma	7	6	1	2	1		79	2	75	6		7	45	28		81	2
97. Primary Emphysema							9		9			5	3	1		9	
98. Other Diseases of the Respiratory System (Tuberculosis excepted)	1	3	1				20		17	3		2	11	7		20	
<b>V. DISEASES OF THE DIGESTIVE SYSTEM.</b>																	
99. Diseases of the Mouth and Anus	182	138	53	34	10		4,247	107	4,146	208		2,652	1,137	560	5	4,354	
100. Diseases of the Pharynx							20	1	20	1		13	7	3		21	1
101. Diseases of the Oesophagus	2	1	1	1			43		43			32	8	1		43	
102. Ulcer of the Stomach	10	5	1	1	1		98	3	90	11		10	4			14	2
103. Other Diseases of the Stomach (Cancer excepted)	26	27	18	10	2		477	23	475	25		283	122	93	2	500	3
104. Diarrhoea and Enteritis (Under 2 Years)							1,637	22	1,679			1,679				1,679	1
105. Diarrhoea and Enteritis (2 Years and Over)	37	47	21	19	3		443	10	418	35		210	116	126	1	453	2
106. Ankylostomiasis							4		4			4				4	
107. Intestinal Parasites																	
108. Appendicitis and Typhlitis	2	2					342	12	338	16		167	163	24		354	4½



TABLE No. 2—Continued.

	75-79	80-84	85-89	90-94	95 and over	White unknown	Colored	Indians	American	Foreign	Not Reported	Single	Married	Widowed or Divorced	Not Reported	Total Deaths Including Non-Residents
VIII. DISEASES OF THE SKIN AND CELLULAR TISSUE.	16	14	10	8	1	114	3	104	13	31	52	34	117			
142. Gangrene	13	13	10	8	1	74	2	68	8	9	38	29	76			
143. Furuncle						15		14	1	5	7	3	15			
144. Acute Abscess	1	1				12	1	11	2	7	4	2	13			
145. Other Diseases of the Skin and Annexa	2					13		11	2	10	3		13			
IX. DISEASES OF THE BONES AND ORGANS OF LOCOMOTION.	4	1	1			65	1	62	4	36	22	8	66			
146. Diseases of the Bones (Tuberculosis excepted)	3		1			59		57	2	34	19	6	59			
147. Diseases of the Joints (Tuberculosis and Rheumatism excepted)	1					4	1	4	1	1	3	1	5			
148. Amputations																
149. Other Diseases of the Organs of Locomotion	1					2		1	1	1			2			
X. MALFORMATIONS.						538	8	546		546			546			
150. Congenital Malformations (Stillbirths not included).																
A. Hydrocephalus						39	2	41		41			41			
B. Congenital Malformation of the Heart						372	6	378		378			378			
C. Other Congenital Malformations						127		127		127			127			
XI. EARLY HISTORY.						1,730	42	1,772		1,772			1,772			
151. Congenital Debility, Icterus and Sclerema.						1,220	38	1,258		1,258			1,258			
A. Premature Birth.						154	2	156		156			156			
B. Congenital Debility, Atrophy, Marasmus, etc.																
152. Other Causes Peculiar to Early Infancy.						185		185		185			185			
A. Injuries at Birth.						164	2	166		166			166			
B. Other Causes Peculiar to Early Infancy						7		7		7			7			
153. Lack of Care.																
XII. OLD AGE.	47	74	51	41	12	241	9	201	47	2	16	78	155	1	250	4
154. Senility	47	74	51	41	12	241	9	201	47	2	16	78	155	1	250	4

## XIII. AFFECTIONS PRODUCED BY EXTERNAL CAUSES.

	88	123	53	30	7	3	2,790	107	2,496	334	67	1,072	1,247	494	84	2,897	.....
155. Suicide by Poison.....	1	1	1				176	4	172	8		33	125	22		180	.....
156. Suicide by Asphyxia.....							12		8	2	2	3	3	3	3	12	.....
157. Suicide by Hanging or Strangulation.....	3	1					69		56	11	2	16	39	14		69	.....
158. Suicide by Drowning.....	1						28		22	5	1	7	13	6	2	28	.....
159. Suicide by Firearms.....	1	3					155		140	14	1	40	90	24	1	155	.....
160. Suicide by Cutting or Piercing Instruments.....							24	1	20	4	1	4	15	5	1	25	.....
161. Suicide by Jumping from High Places.....							5		3	2		3		2		5	.....
162. Suicide by Crushing.....							4		2	1	1			1	2	4	.....
163. Other Suicides.....	1	1	1				6		2	1	1		3	2	1	6	.....
164. Poisoning by Food.....							27		25	2		12	11	4		27	.....
165. Other Acute Poisonings.....							40	4	40	4		26	14	4		44	.....
166. Conflagration.....	1	1					19	2	21			99	5	7		21	.....
167. Burns (Conflagration excepted).....	3	3		1			135	4	129	10		79	40	20		139	.....
168. Absorption of Deleterious Gases (Conflagration excepted).....							74	2	67	7	2	51	19	4	2	76	.....
169. Accidental Drowning.....	1					1	174	12	168	14	4	139	31	6	10	186	.....
170. Traumatism by Firearms.....							68	1	68	1		42	23	4		69	.....
171. Traumatism by Cutting or Piercing Instruments.....							14		14			7	7			14	.....
172. Traumatism by Fall.....	57	88	46	24	7		457	7	397	61	6	81	165	215	3	464	.....
173. Traumatism in Mines and Quarries.....																	.....
A. Traumatism in Mines.....							52	2	43	11		11	39	4		54	.....
B. Traumatism in Quarries.....							2		2			1	1			2	.....
174. Traumatism by Machines.....							46	2	42	6		16	30	1	1	48	.....
175. Traumatism by Other Crushing.....	6	10	2				444	19	362	72	29	174	209	47	33	463	.....
A. Railroad Accidents and Injuries.....	2	1	1				93	2	86	6	3	29	54	11	1	95	.....
B. Street Car Accidents and Injuries.....																	.....
C. Automobile Accidents and Injuries.....	3	1	1				161	6	150	17		78	70	17	2	167	.....
D. Injuries by Other Vehicles.....	2	2	1				63	1	58	5	1	20	31	10	3	64	1
E. Landslide and Other Crushing.....							13	1	13	1		5	6	3		14	.....
F. Bicycles.....							2		1	1	1	1	1		2	2	.....
G. Motorcycles.....							17		13	4		12	5			17	.....
176. Injuries by Animals.....							36		33	3		17	18	1		36	.....
177. Starvation.....																	.....
178. Excessive Cold.....							16	1	10	3	4	8	3	2	4	17	.....
179. Effects of Heat.....	4	4		5	1		89	7	64	29	3	34	31	26	5	96	3
180. Lightning.....	1						20		20			9	6			5	.....
181. Electricity (Lightning excepted).....							33		29	4		9	21	2	1	33	.....
182. Homicide by Firearms.....							78	18	84	11	1	27	58	8	3	96	.....

TABLE No. 2—Continued.

	75-79	80-84	85-89	90-94	95 and over	White	Colored	Indians	American	Foreign	Not Reported	Single	Married	Widowed or Divorced	Not Reported	Total Deaths Including Non-residents
183. Homicide by Cutting or Piercing Instruments.....						14	3		10	5	2	7	7	1	2	17
184. Homicide by Other Means.....						25	5		26	3	1	13	10	5	2	30
185. Fractures (cause not specified).....					1	1			1			1				1
186. Other External Violence.....						93	3		93	6	2	48	43	7	3	101
XIV. ILL DEFINED DISEASES.	1					20			20			12	7	1		20
187. Ill Defined Organic Disease.....																
188. Sudden Death.....																
189. Ill Defined or Nonspecific.....						9			9			3				9
A. Ill Defined.....	1															
B. Not Specified or Unknown.....						11			11			9	2	1		11

TABLE No. 3.

Deaths in Indiana by Months, Counties, Ages, Sex, Color, Nationality and Conjugal Condition for Year 1916.

COUNTIES	SEX	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Adams	Total	21	26	20	19	9	16	13	11	22	12	16	18
	Males	14	12	12	9	5	9	8	4	13	7	8	8
	Females	7	14	8	10	4	7	5	7	9	5	8	10
Allen	Total	144	121	99	121	98	94	84	99	98	112	83	94
	Males	79	72	58	70	53	42	42	47	58	60	61	46
	Females	65	49	41	51	45	52	42	52	40	52	22	48
Bartholomew	Total	37	29	24	27	26	20	28	24	14	18	17	21
	Males	23	15	15	17	16	5	13	12	7	4	8	14
	Females	14	14	9	10	10	15	15	12	7	14	9	7
Benton	Total	15	13	19	11	10	9	9	9	6	11	10	10
	Males	8	6	10	5	5	3	4	4	4	6	4	4
	Females	7	7	9	6	5	6	5	5	2	5	6	6
Blackford	Total	17	13	22	16	14	11	9	8	20	17	15	17
	Males	7	7	14	7	7	5	5	4	14	11	7	6
	Females	10	6	8	9	7	6	4	4	6	6	8	11
Boone	Total	52	24	27	25	29	17	20	26	24	22	18	23
	Males	31	9	11	18	13	7	12	16	16	15	14	11
	Females	21	15	15	7	16	10	8	14	8	7	4	12
Brown	Total	14	9	5	8	8	4	10	4	9	5	5	8
	Males	8	3	2	2	6	2	6	3	5	5	4	4
	Females	6	6	3	2	2	2	4	1	4	...	1	4
Carroll	Total	20	26	26	17	23	14	10	16	14	17	14	12
	Males	7	13	14	9	9	5	6	8	10	11	10	8
	Females	13	13	12	8	14	9	4	8	4	6	4	4
Cass	Total	82	58	66	53	58	35	37	39	53	34	38	42
	Males	36	36	38	29	31	20	23	24	36	18	17	24
	Females	46	22	28	24	27	15	14	17	17	16	21	18

TABLE No. 3—Continued.

COUNTIES	SEX	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Clark.....	Total.....	47	39	41	26	28	30	28	31	24	26	36	34
	Males.....	18	21	20	12	8	11	21	19	11	14	18	18
	Females.....	29	18	21	14	20	19	7	12	13	12	18	16
Clay.....	Total.....	29	42	49	22	32	21	27	34	28	28	25	26
	Males.....	15	22	27	10	13	9	8	15	14	16	14	16
	Females.....	14	20	22	12	19	12	19	19	14	12	11	10
Clinton.....	Total.....	40	36	31	32	26	27	27	28	30	32	26	29
	Males.....	27	16	17	20	12	14	15	13	16	14	16	13
	Females.....	13	20	14	12	14	13	12	13	14	18	10	16
Crawford.....	Total.....	24	15	16	11	12	11	9	10	12	5	20	14
	Males.....	12	7	8	5	8	6	6	6	5	2	7	10
	Females.....	12	8	8	6	4	5	3	4	7	3	13	4
Davies.....	Total.....	37	38	37	30	31	19	24	20	29	31	21	22
	Males.....	19	20	21	15	11	7	12	11	11	16	12	13
	Females.....	18	18	16	15	20	12	12	9	18	15	9	9
Deaton.....	Total.....	33	23	15	26	22	20	18	26	25	32	23	26
	Males.....	18	11	9	11	13	13	9	16	15	14	12	14
	Females.....	15	12	6	15	9	7	9	10	10	18	11	12
Deatur.....	Total.....	34	18	24	19	16	18	23	22	19	24	16	24
	Males.....	15	9	15	8	11	11	13	11	11	13	5	15
	Females.....	19	9	9	11	5	7	10	11	8	11	11	9
Detailb.....	Total.....	30	35	33	24	24	22	23	21	25	18	25	31
	Males.....	12	17	13	10	10	12	13	14	16	11	15	17
	Females.....	18	18	20	14	14	10	10	7	9	7	10	14
Delaware.....	Total.....	60	63	56	54	50	47	64	50	69	52	54	62
	Males.....	34	32	29	32	29	16	32	34	33	32	34	35
	Females.....	26	31	27	22	21	32	32	16	36	20	20	27
Dubois.....	Total.....	30	20	19	16	13	12	30	15	27	16	13	11
	Males.....	16	8	7	5	7	9	10	5	14	10	6	4
	Females.....	14	12	12	11	4	5	20	10	13	6	7	7



Elkhart.....	Total.....	74	49	66	74	48	50	51	54	59	48
	Males.....	37	24	35	38	27	22	28	31	29	28
	Females.....	37	25	31	36	21	19	23	23	30	22
Fayette.....	Total.....	28	17	17	20	21	14	14	20	17	21
	Males.....	14	10	11	9	10	5	11	12	10	10
	Females.....	14	7	6	11	11	9	7	8	7	11
Floyd.....	Total.....	48	23	30	40	37	26	31	33	25	31
	Males.....	21	13	12	22	24	21	12	19	15	16
	Females.....	27	10	18	18	13	16	19	14	10	15
Fountain.....	Total.....	37	23	34	28	14	18	14	8	22	25
	Males.....	19	13	16	17	9	7	11	3	14	14
	Females.....	18	10	18	11	5	11	10	5	8	11
Franklin.....	Total.....	23	20	17	21	14	11	11	22	8	14
	Males.....	11	11	7	14	9	2	5	15	3	5
	Females.....	12	9	10	7	5	9	6	7	5	9
Fulton.....	Total.....	27	26	23	14	22	14	13	11	17	22
	Males.....	15	15	13	3	13	9	6	4	11	13
	Females.....	12	11	10	11	9	5	7	7	6	9
Gibson.....	Total.....	42	34	39	28	23	29	27	22	26	24
	Males.....	21	16	21	15	14	12	12	12	12	15
	Females.....	23	18	18	13	9	10	15	10	14	9
Grant.....	Total.....	121	70	92	78	78	69	74	61	65	61
	Males.....	85	42	61	49	41	44	43	37	42	40
	Females.....	36	28	31	29	37	25	27	24	23	21
Grease.....	Total.....	41	37	34	34	37	32	26	35	39	37
	Males.....	22	16	18	14	20	12	17	19	22	18
	Females.....	19	21	16	20	17	20	8	16	17	19
Hamilton.....	Total.....	31	32	25	29	20	29	26	25	25	19
	Males.....	15	14	15	18	12	17	11	14	14	10
	Females.....	16	18	10	11	8	12	15	11	11	9
Hancock.....	Total.....	28	27	27	14	19	13	22	13	15	18
	Males.....	18	16	12	6	12	8	9	6	7	12
	Females.....	10	11	15	8	7	5	13	7	8	6
Harrison.....	Total.....	32	27	18	21	17	14	11	17	11	21
	Males.....	22	15	14	14	9	8	6	8	6	11
	Females.....	10	12	4	7	8	6	5	9	5	10

TABLE No. 3—Continued.

COUNTIES	SEX	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Hendricks.....	Total.....	47	16	35	27	21	21	13	10	18	12	15	24
	Males.....	21	10	24	11	13	11	5	6	13	5	5	11
	Females.....	26	6	11	16	8	10	7	4	5	7	10	13
Henry.....	Total.....	43	31	40	28	28	26	42	33	46	37	45	46
	Males.....	21	16	24	15	11	17	27	24	22	20	27	31
	Females.....	22	15	16	13	17	9	15	11	24	17	18	15
Howard.....	Total.....	46	44	54	39	34	32	38	48	43	46	42	46
	Males.....	26	20	26	19	12	17	17	30	31	27	25	19
	Females.....	20	24	28	20	22	15	21	18	12	19	17	27
Huntington.....	Total.....	32	33	38	26	36	31	34	30	29	26	23	27
	Males.....	15	13	19	18	19	17	16	19	14	14	10	16
	Females.....	17	15	19	8	17	14	18	11	15	12	13	11
Jackson.....	Total.....	38	35	37	37	29	17	24	19	30	20	27	33
	Males.....	23	18	14	13	14	9	14	14	10	14	10	18
	Females.....	15	17	23	24	15	8	10	9	16	10	9	16
Jasper.....	Total.....	18	12	20	21	11	8	10	16	11	10	8	9
	Males.....	5	7	10	7	8	5	4	17	7	4	3	6
	Females.....	13	5	10	14	3	3	6	6	4	6	5	3
Jay.....	Total.....	39	32	27	26	26	21	27	24	29	21	15	18
	Males.....	17	21	12	14	13	11	14	14	13	10	8	9
	Females.....	21	11	15	12	13	10	13	10	16	11	7	9
Jefferson.....	Total.....	45	41	26	31	27	23	28	35	21	29	32	38
	Males.....	24	22	17	24	16	13	15	22	13	18	22	23
	Females.....	21	19	9	7	11	10	13	14	8	11	10	15
Jennings.....	Total.....	15	18	15	17	12	9	20	12	8	9	13	12
	Males.....	10	11	9	11	3	3	11	8	6	4	5	9
	Females.....	5	7	6	6	9	6	9	4	2	5	8	3
Johnson.....	Total.....	20	23	25	17	15	19	25	22	19	20	17	27
	Males.....	13	12	14	6	9	6	11	14	10	12	9	15
	Females.....	7	11	11	11	6	13	14	8	9	8	8	12

Knox	T. al.	52	46	51	42	53	44	70	59	54	38	38	54
	Males	29	26	21	21	26	26	40	29	29	17	20	28
	Females	23	2	30			18	30	30	26	21	18	28
Kosciusko	Total	24	26	36	48	23	21	36	23	38	22	27	29
	Males	14	12	21	15	13	13	19	13	21	10	13	16
	Females	10	14	15	27	8	8	17	15	17	12	14	13
Lagrange	Total	30	23	24	11	25	21	18	11	16	14	5	19
	Males	15	15	15	6	11	7	10	8	10	8	4	7
	Females	12	8	10	5	14	14	8	3	6	6	1	12
Lake	Total	166	160	159	199	167	129	226	174	163	163	145	147
	Males	100	101	105	121	113	80	144	101	102	103	98	100
	Females	66	59	54	78	54	49	82	73	61	60	47	47
Laporte	Total	86	65	59	64	61	40	57	50	50	45	61	61
	Males	41	35	27	44	26	23	34	29	37	34	28	33
	Females	45	30	32	20	25	17	23	21	13	11	28	35
Lawrence	Total	37	34	29	34	22	23	35	25	22	34	22	27
	Males	17	17	14	15	11	12	11	16	12	17	13	14
	Females	20	17	15	19	11	11	24	9	10	17	9	13
Madison	Total	84	58	81	72	74	61	44	77	62	85	59	68
	Males	39	37	47	38	32	29	20	38	32	46	36	37
	Females	45	21	34	34	42	32	24	39	30	39	23	31
Marion	Total	485	381	492	430	390	332	373	426	378	366	330	403
	Males	251	188	242	234	212	166	198	215	195	193	159	222
	Females	234	193	250	196	178	164	175	211	183	173	171	181
Marshall	Total	30	26	29	27	19	33	23	17	24	24	18	25
	Males	15	16	15	13	10	18	13	8	17	14	11	11
	Females	15	10	14	14	9	15	10	9	7	10	7	14
Martin	Total	23	21	15	5	9	13	15	9	8	14	13	8
	Males	11	12	6	3	4	5	9	4	2	9	6	2
	Females	12	9	9	2	5	8	6	5	6	5	7	6
Miami	Total	44	40	44	44	32	27	30	23	30	25	22	27
	Males	20	22	24	24	15	13	15	12	20	14	12	13
	Females	24	18	20	20	17	14	15	11	10	11	10	14
Monroe	Total	22	18	23	19	16	19	21	30	41	32	21	29
	Males	10	10	8	12	8	12	8	18	20	17	11	16
	Females	12	8	15	7	8	7	13	12	21	15	10	13

TABLE No. 3—Continued.

COUNTIES	SEX	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Montgomery	Total	42	39	45	36	35	29	15	32	32	28	23	39
	Males	20	22	18	24	20	18	8	15	17	15	11	18
	Females	22	17	27	12	15	11	7	17	15	13	12	21
Morgan	Total	30	34	25	21	21	13	21	23	22	26	17	17
	Males	12	18	16	9	10	4	14	11	11	11	9	6
	Females	18	16	9	7	10	4	7	12	11	15	8	11
Newton	Total	11	7	13	9	14	4	12	10	5	8	4	7
	Males	5	5	6	3	5	1	7	5	2	2	1	5
	Females	6	2	7	6	9	3	5	5	3	6	3	2
Noble	Total	32	38	32	33	24	20	29	29	21	24	22	28
	Males	13	23	21	21	9	9	16	18	16	21	13	19
	Females	19	15	11	12	15	11	13	11	5	3	9	9
Ohio	Total	9	4	2	6	9	5	2	4	3	4	7	4
	Males	3	1	1	3	5	1	2	1	1	1	3	4
	Females	6	3	2	3	4	4	2	3	2	1	4	4
Orange	Total	33	20	20	26	18	11	17	18	17	16	16	21
	Males	18	12	13	14	12	7	9	11	10	8	9	11
	Females	15	8	7	12	6	4	8	7	7	8	7	10
Owen	Total	22	25	20	8	17	12	11	9	11	13	13	13
	Males	13	14	6	4	8	9	5	3	3	4	7	6
	Females	9	11	14	4	9	3	6	6	7	6	3	7
Parks	Total	32	28	40	20	21	21	25	29	20	22	20	22
	Males	18	16	22	8	11	10	13	13	10	11	15	14
	Females	14	12	18	12	10	11	17	16	10	11	5	8
Perry	Total	28	14	13	16	10	12	21	9	18	23	9	14
	Males	14	5	6	6	6	6	9	4	4	6	3	6
	Females	14	9	7	10	4	6	12	5	12	16	6	8
Pike	Total	28	21	20	12	13	19	10	22	27	14	17	17
	Males	11	11	10	7	10	12	3	10	12	10	10	5
	Females	17	10	10	5	7	7	7	12	15	4	12	8

Porter.....	Total.....	35	20	17	20	16	26	16	24	25	18	18
	Males.....	16	10	10	11	10	15	8	14	15	11	9
	Females.....	19	10	7	9	6	11	8	10	10	7	9
Posey.....	Total.....	25	17	21	28	20	20	14	13	18	14	22
	Males.....	15	6	14	18	13	11	6	7	7	5	8
	Females.....	10	11	7	10	7	9	8	6	13	6	7
Pulaski.....	Total.....	10	23	19	8	15	11	9	14	6	10	11
	Males.....	8	12	8	6	9	7	3	4	4	5	5
	Females.....	2	11	11	2	6	4	6	10	2	5	6
Putnam.....	Total.....	28	20	18	20	19	23	15	22	19	12	22
	Males.....	16	8	10	12	12	9	8	14	10	6	13
	Females.....	12	12	8	8	7	14	7	8	9	6	9
Randolph.....	Total.....	48	21	49	25	24	24	22	26	37	32	32
	Males.....	20	7	22	14	8	11	9	11	27	22	16
	Females.....	28	14	27	11	16	13	14	15	10	10	16
Ripley.....	Total.....	27	30	22	23	19	13	18	18	22	19	26
	Males.....	15	12	11	9	11	6	13	9	10	11	10
	Females.....	12	18	11	14	8	7	5	9	12	8	16
Rush.....	Total.....	35	20	25	22	17	18	16	15	17	19	15
	Males.....	18	7	11	16	8	9	7	7	10	8	9
	Females.....	17	13	14	6	9	9	9	8	7	11	6
Scott.....	Total.....	11	5	6	14	5	5	4	6	10	6	12
	Males.....	10	2	3	8	3	4	3	3	6	3	5
	Females.....	1	3	3	6	2	1	1	3	4	3	7
Shelby.....	Total.....	40	17	38	36	26	16	23	28	31	23	24
	Males.....	15	9	22	16	14	11	9	11	14	12	14
	Females.....	25	8	16	20	12	5	14	18	17	11	10
Spencer.....	Total.....	39	20	29	20	17	21	15	16	21	23	25
	Males.....	16	9	12	13	8	15	8	10	9	13	14
	Females.....	23	11	17	7	9	6	7	6	12	10	11
Stark.....	Total.....	17	11	11	5	8	9	10	18	6	10	16
	Males.....	9	7	7	3	3	5	5	6	2	4	8
	Females.....	8	4	4	2	5	4	5	12	4	6	8
Stauben.....	Total.....	15	18	22	29	18	11	13	12	20	13	24
	Males.....	7	10	11	15	9	7	7	4	8	4	10
	Females.....	8	8	11	14	9	5	6	8	12	9	14

TABLE No. 3—Continued.

COUNTIES	SEX	Jan.	Feb.	March	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
St. Joseph.	Total.	135	103	116	95	102	89	116	110	114	101	103	101
	Males.	69	54	69	49	52	46	71	62	69	51	60	53
	Females.	66	49	47	46	50	43	45	48	45	50	43	48
Sullivan.	Total.	26	26	40	32	20	20	29	32	17	30	31	28
	Males.	16	20	14	18	10	13	10	18	9	10	17	12
	Females.	10	6	26	14	10	7	19	14	8	20	14	16
Switzerland.	Total.	13	13	19	11	8	10	13	14	6	8	2	9
	Males.	8	7	9	5	4	7	7	8	4	4	3	3
	Females.	5	6	10	6	4	3	6	6	2	5	2	6
Tippesaw.	Total.	89	49	59	68	57	41	59	58	53	50	49	73
	Males.	47	32	35	42	26	21	32	30	25	25	26	40
	Females.	42	17	24	26	31	20	27	28	28	25	23	33
Tipton.	Total.	19	17	23	17	14	10	29	16	22	27	15	13
	Males.	10	8	10	5	5	5	17	7	11	15	8	5
	Females.	9	11	15	7	9	5	12	9	11	5	7	8
Union.	Total.	12	9	6	5	7	3	8	6	4	5	8	6
	Males.	3	2	1	1	6	2	6	1	2	2	1	2
	Females.	9	7	5	4	1	1	2	5	2	3	7	4
Vanderburgh.	Total.	123	108	130	105	102	97	128	111	101	109	126	106
	Males.	70	47	72	60	57	57	61	66	58	59	68	52
	Females.	53	61	58	45	45	40	67	45	43	50	58	54
Vermillion.	Total.	34	33	36	25	25	22	29	37	29	34	22	29
	Males.	16	19	22	6	16	14	18	16	16	21	11	20
	Females.	18	14	14	19	9	8	11	18	13	13	11	9
Vigo.	Total.	148	124	125	104	103	88	131	106	111	128	126	103
	Males.	71	57	70	51	55	49	61	67	69	65	76	49
	Females.	77	67	55	53	48	39	70	39	42	63	50	54
Wabash.	Total.	33	27	26	30	13	21	19	23	23	21	26	22
	Males.	17	8	17	15	11	14	14	17	13	13	16	11
	Females.	16	19	9	15	2	10	5	12	10	6	10	6

Warren.....	Total.....	9	16	15	10	9	6	14	10	6	5	10	5
Males.....	1	10	8	7	3	3	5	4	4	4	2	4	2
Females.....	8	6			6			10	6		1	3	3
Warwick.....	Total.....	25	18	18	19	15	16	23	11	15	16	21	20
Males.....	9	12	8	8	13	7	11	11	6	10	8	11	11
Females.....	16	6	10	10	6	8	5	12	5	5	8	10	9
Washington.....	Total.....	25	21	22	18	14	13	24	10	9	14	15	11
Males.....	16	12	12	9	9	5	3	15	4	6	8	7	7
Females.....	9	9	10	9	9	9	10	9	6	3	6	8	4
Wayne.....	Total.....	81	59	69	50	65	41	62	56	53	66	61	82
Males.....	47	28	38	23	33	33	20	34	30	23	46	33	37
Females.....	34	31	31	21	32	32	21	28	26	30	20	28	45
Wells.....	Total.....	25	15	18	22	15	18	9	13	20	20	9	24
Males.....	11	6	10	11	8	8	8	6	4	14	10	7	12
Females.....	14	10	8	11	7	7	10	3	9	6	10	2	12
White.....	Total.....	21	27	16	17	19	11	10	13	15	24	17	19
Males.....	13	15	8	8	16	16	5	10	7	11	12	11	7
Females.....	8	12	8	9	3	3	6	9	6	4	12	6	12
Whitely.....	Total.....	23	21	13	18	13	10	12	17	13	15	12	10
Males.....	14	11	4	13	8	3	4	6	11	7	7	7	2
Females.....	9	10	9	5	5	8	6	6	6	6	8	5	8
Grand Total.....	Total.....	4,161	3,354	3,672	3,305	2,986	2,576	3,149	3,100	3,006	3,006	2,892	3,132
Males.....	2,167	1,738	1,957	1,786	1,591	1,329	1,329	1,660	1,633	1,631	1,640	1,553	1,675
Females.....	1,994	1,596	1,715	1,510	1,395	1,355	1,247	1,489	1,417	1,356	1,360	1,249	1,457

TABLE No. 3—Continued.  
Deaths in Indiana by Months, Counties, Ages, Sex, Color, Nationality and Conjugal Condition for Year 1916.

COUNTIES	SEX	Un- der 1	1	2	3	4	Un- der 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69
Adams.....	Total.....	31	11	4	1	2	49	3	5	6	4	6	7	5	8	8	4	8	11	9
	Males.....	17	8	2		2	20	1	2	4	1	2	2	2	2	2	2	4	6	7
	Females.....	14	3	2	1		20	2	3	2	3	4	5	3	5	6	2	4	5	2
Allen.....	Total.....	163	28	14	9		214	16	24	26	43	43	39	48	48	62	70	85	92	119
	Males.....	96	15	7	6		124	11	15	15	24	26	20	29	28	41	32	51	52	63
	Females.....	67	13	7	3		90	5	9	11	19	17	19	19	20	21	38	34	40	56
Bartholomew.....	Total.....	24	6	6			36	7	5	10	5	6	12	11	7	7	17	19	23	25
	Males.....	10	4	2			16	5	1	3	3	2	7	8	3	4	10	12	10	18
	Females.....	14	2	4			20	2	4	7	2	4	5	3	4	3	7	7	13	7
Benton.....	Total.....	16	5	3		1	25		1	1	7	7		3	6	3	3	6	15	7
	Males.....	6	4	1		1	12				3	3		1	2	2	2	2	8	5
	Females.....	10	1	2			13		1		4	6		2	4	1	1	4	7	2
Blackford.....	Total.....	28	5	1	1	1	36	3	2	2	8	9	9	3	7	6	9	9	11	13
	Males.....	19	2			1	22	1	1	1	7	4	4	1	2	3	4	4	10	10
	Females.....	9	3	1	1		14	3	1	1	1	5	5	2	5	3	5	5	7	3
Boone.....	Total.....	25	10	2	1		38	8	7	5	10	12	5	5	8	8	14	22	21	30
	Males.....	18	5		1		24	5	4	2	6	6	4	1	3	2	7	13	14	14
	Females.....	7	5	2			14	3	3	3	4	8	4	2	6	6	7	9	7	16
Brown.....	Total.....	9	3	1	1	1	15	3	1	3	5	4	5		2	2	3	1	6	10
	Males.....	7	1	1			10	3	1	1	3	3	3			2	1		6	6
	Females.....	2	2		1	1	5			2	2	1	2			1	2	1		4
Carroll.....	Total.....	36	4	1	2	1	44	3	2	1	7	2	6	5	3	7	7	7	19	16
	Males.....	21	3	1	2	1	28	1	2	1	3		3	1	1	1	4	4	11	10
	Females.....	15	1				16	2			4	2	3	4	2	6	3	3	8	6
Cass.....	Total.....	57	5	6	5	2	75	8	8	11	18	20	23	25	28	30	32	44	43	55
	Males.....	32	3	5	3	2	44	3	5	4	11	14	12	11	16	21	19	30	29	39
	Females.....	25	2	1	3		31	5	3	7	7	6	11	14	12	9	13	14	14	16



Clark.....	Total.....	44	10	5	2	1	2	60	3	8	6	14	15	11	10	16	9	24	24	21	28
	Males.....	22	5	1	1	1	1	31	1	5	2	7	9	6	2	2	7	12	11	9	13
	Females.....	22	5	1	1	1	1	29	2	3	4	7	6	5	8	12	2	12	13	12	15
Clay.....	Total.....	51	11	4	2	4	4	75	10	10	15	6	13	9	10	9	16	11	23	24	46
	Males.....	20	4	2	2	2	4	39	4	1	6	6	3	4	2	3	9	8	11	13	26
	Females.....	22	7	5	2	2	4	36	6	9	9	1	10	5	8	6	7	3	12	11	20
Clinton.....	Total.....	24	11	2	2	2	2	49	8	5	6	14	8	9	6	16	12	16	28	21	32
	Males.....	22	8	2	2	2	2	33	6	3	4	7	3	4	3	4	4	9	15	10	19
	Females.....	12	3	1	1	1	1	16	2	2	2	7	5	5	3	11	8	7	13	11	13
Crawford.....	Total.....	15	5	2	2	2	2	27	5	1	2	3	5	3	9	9	5	3	11	8	17
	Males.....	7	5	2	2	2	2	17	4	1	1	2	2	1	3	4	4	1	2	6	10
	Females.....	8	1	1	1	1	1	10	1	1	1	1	4	2	6	5	1	2	9	2	7
Davies.....	Total.....	62	10	3	4	2	2	81	3	8	5	8	12	12	11	11	11	18	21	26	25
	Males.....	29	2	1	1	1	1	32	2	5	5	3	6	6	7	5	8	9	10	13	12
	Females.....	33	8	3	3	2	2	49	1	3	1	5	6	6	4	6	3	9	11	13	13
Dearborn.....	Total.....	30	2	4	2	2	2	38	2	3	8	4	10	7	7	9	13	15	14	26	29
	Males.....	10	1	2	1	1	1	14	1	3	5	1	4	4	4	4	5	11	8	17	15
	Females.....	20	1	2	1	1	1	24	1	1	3	3	6	3	3	5	8	4	6	9	14
Deatur.....	Total.....	32	3	3	1	1	1	40	6	3	3	7	1	5	5	15	8	13	16	8	26
	Males.....	16	2	1	1	1	1	20	5	2	2	5	1	4	4	8	4	7	11	5	17
	Females.....	16	1	2	1	1	1	20	1	3	1	2	1	1	2	7	4	6	5	3	9
Detailb.....	Total.....	29	13	2	2	2	2	48	4	7	6	6	12	8	8	8	8	10	18	24	33
	Males.....	16	9	1	1	1	1	26	2	4	2	2	6	6	6	5	1	7	9	9	22
	Females.....	13	4	2	2	2	2	22	2	3	4	6	6	2	2	3	7	3	9	15	11
Delaware.....	Total.....	122	15	13	5	5	5	160	10	10	14	24	26	14	17	34	25	34	34	44	57
	Males.....	47	6	6	4	3	3	86	7	3	7	13	14	7	7	11	12	21	24	25	42
	Females.....	55	9	7	1	2	2	74	3	7	7	11	12	7	10	23	13	13	10	19	15
Dubois.....	Total.....	38	8	2	2	2	2	50	5	7	6	5	12	11	12	6	8	3	5	10	13
	Males.....	18	2	1	1	1	1	22	3	4	2	2	5	3	6	4	3	2	3	9	9
	Females.....	20	6	1	1	1	1	28	2	3	4	3	7	8	6	2	5	1	2	8	4
Elkhart.....	Total.....	94	6	6	5	5	5	116	9	14	16	16	12	25	24	20	25	35	44	55	54
	Males.....	63	2	3	3	3	3	75	4	9	8	6	5	13	6	10	16	15	16	30	35
	Females.....	31	4	1	2	2	2	41	5	4	6	11	7	12	18	10	9	20	28	25	19
Fayette.....	Total.....	31	6	6	1	3	47	5	3	1	5	4	8	12	5	6	9	8	18	13	18
	Males.....	13	1	1	1	1	19	3	1	4	4	4	6	7	2	3	7	3	9	18	10
	Females.....	16	5	5	1	2	28	2	2	1	1	4	2	5	3	3	2	5	9	5	8

TABLE No. 3—Continued.

COUNTIES	SEX	Under 1	1	2	3	4	Under 5	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69
Floyd	Total	42	4	5	2	.....	53	6	6	19	15	11	16	13	13	17	26	22	29	36
	Males	25	2	2	1	.....	30	5	5	8	8	4	5	7	7	7	14	13	20	13
	Females	17	2	3	1	.....	23	1	1	11	11	6	4	6	6	10	12	9	9	23
Fountain	Total	29	4	1	3	1	38	4	5	4	8	2	6	8	12	9	7	23	16	25
	Males	16	2	1	3	.....	22	3	1	1	4	2	3	4	7	4	5	16	10	14
	Females	13	2	.....	.....	1	16	1	4	3	4	6	3	4	5	4	2	7	6	11
Franklin	Total	17	4	4	.....	2	27	4	4	4	6	4	4	4	3	5	7	8	11	28
	Males	9	1	2	.....	1	13	2	3	2	5	1	3	4	1	2	4	6	6	17
	Females	8	3	2	.....	1	14	2	1	2	1	3	1	.....	2	3	3	2	5	11
Fulton	Total	29	.....	1	1	1	32	4	2	4	7	8	4	6	8	11	10	16	21	17
	Males	19	.....	.....	1	1	21	2	2	2	2	1	1	4	4	6	5	8	11	11
	Females	10	.....	1	.....	.....	11	2	2	2	5	7	3	2	6	5	5	8	10	6
Gibson	Total	43	11	6	4	2	66	4	10	13	6	7	7	14	9	18	18	25	22	22
	Males	20	7	3	4	.....	34	2	6	8	5	5	4	6	3	10	11	18	8	9
	Females	23	4	3	.....	2	32	2	4	5	1	2	3	8	6	8	7	7	14	13
Grant	Total	83	19	14	6	3	125	18	8	23	26	25	23	28	20	32	40	45	70	67
	Males	48	13	8	2	1	72	10	6	13	8	13	10	17	8	15	16	24	34	49
	Females	35	6	6	4	2	53	8	2	10	18	12	13	11	12	17	24	21	36	18
Greene	Total	72	22	3	4	1	102	10	2	14	12	14	19	11	11	15	16	19	30	42
	Males	40	16	2	3	.....	53	7	.....	6	5	4	10	5	4	9	9	12	16	26
	Females	32	14	1	1	1	49	3	2	8	7	10	9	6	7	6	7	7	14	16
Hamilton	Total	43	4	2	2	1	52	3	7	10	6	9	9	8	13	9	13	16	29	23
	Males	28	2	1	.....	.....	31	2	2	5	1	4	3	6	5	5	9	7	18	16
	Females	15	2	1	2	1	21	1	5	5	5	5	6	2	8	4	4	9	11	7
Hancock	Total	26	5	1	2	.....	34	4	3	3	7	5	10	4	6	6	12	12	23	19
	Males	22	3	.....	.....	.....	26	2	3	1	4	4	1	7	4	3	6	5	15	7
	Females	4	2	1	1	.....	8	2	.....	2	3	4	3	4	3	2	6	7	8	12
Harrison	Total	33	7	.....	.....	2	42	1	3	8	7	4	6	5	7	6	10	8	18	28
	Males	23	5	.....	.....	2	30	1	.....	5	3	2	3	2	2	4	6	4	9	13
	Females	10	2	.....	.....	.....	12	.....	3	3	4	2	3	3	5	2	4	4	9	15

Headricks.	Total	23	4	4	1	32	3	3	7	9	7	7	12	5	5	11	20	16	27
	Males	13	2	3	1	19	2	1	3	6	4	2	6	2	2	4	10	13	11
	Females	10	2	1	...	13	1	2	4	3	3	5	6	3	3	7	10	3	16
Henry	Total	70	19	7	4	107	9	7	16	11	17	6	17	14	12	25	19	26	31
	Males	47	11	3	3	70	7	3	13	6	17	4	11	10	15	12	16	20	26
	Females	23	8	4	1	37	2	4	3	5	10	2	6	7	2	10	7	10	11
Howard	Total	86	14	12	6	126	16	10	20	18	21	13	19	17	17	22	23	28	39
	Males	52	8	8	4	75	11	6	10	10	10	8	9	10	6	10	12	17	17
	Females	34	6	4	2	51	5	4	10	8	11	5	10	7	11	12	11	11	20
Huntington	Total	48	3	2	4	58	5	7	5	14	6	10	15	6	10	16	22	28	35
	Males	28	1	1	3	34	4	4	3	5	3	6	8	3	4	10	15	12	23
	Females	20	2	1	1	24	1	3	2	9	3	4	7	3	6	6	7	16	12
Jackson	Total	44	8	4	2	62	4	9	16	13	11	11	12	11	10	15	14	21	34
	Males	25	4	1	2	32	3	3	5	4	4	4	5	7	3	4	8	14	13
	Females	19	4	4	3	30	1	6	11	9	7	7	7	4	7	11	6	7	21
Jasper	Total	23	2	1	1	27	1	3	3	5	5	1	6	5	4	7	11	15	9
	Males	14	1	...	...	15	...	2	3	2	2	...	1	2	2	3	7	11	2
	Females	9	1	1	1	12	1	1	...	3	3	1	5	3	2	4	4	4	7
Jay	Total	51	6	4	3	64	4	4	5	8	8	9	4	3	5	13	17	27	21
	Males	25	4	3	...	32	2	1	4	3	3	5	2	3	1	6	8	13	13
	Females	26	2	1	3	32	2	2	1	5	5	4	2	...	4	7	9	14	8
Jefferson	Total	26	6	2	1	35	6	3	3	8	12	14	19	16	16	19	29	28	40
	Males	16	4	2	1	23	4	2	1	5	7	6	13	10	12	14	16	18	27
	Females	10	2	...	...	12	2	1	2	3	5	8	6	6	4	5	13	10	13
Jennings	Total	21	1	2	1	25	2	2	4	6	3	7	5	5	4	10	6	12	19
	Males	17	1	2	...	21	1	1	1	3	2	6	1	2	3	8	3	7	11
	Females	4	...	...	...	4	1	1	3	4	1	1	4	3	1	2	3	5	8
Johnson	Total	44	5	...	3	53	2	2	9	10	5	6	7	8	5	8	10	14	23
	Males	27	3	2	2	32	1	1	3	5	2	4	2	1	4	6	4	9	13
	Females	17	2	...	1	21	1	1	6	5	3	2	5	7	1	2	6	5	10
Knox	Total	108	39	12	10	175	16	14	21	24	24	19	28	21	24	27	25	32	39
	Males	53	16	6	5	85	5	7	13	14	13	10	17	13	11	13	16	19	20
	Females	55	24	6	5	90	11	7	8	10	11	9	11	8	13	14	9	13	19
Kosciusko	Total	42	11	11	1	67	10	4	6	10	5	6	8	14	9	16	20	25	31
	Males	23	4	7	1	36	8	3	4	3	...	3	1	3	5	12	17	17	15
	Females	19	7	4	...	31	2	1	2	7	5	3	7	10	4	4	8	8	15

TABLE No. 3—Continued.

COUNTIES	SEX	Under 1	1	2	3	4	Under 5	5	10	15	20	25	30	35	40	45	50	55	60	65
Lagrange	Total	31	5	5	3	1	45	3	4	8	1	4	2	8	6	4	10	11	15	30
	Males	18	3	4	1	1	26	1	4	6	1	3	2	3	2	2	4	6	11	17
	Females	13	2	1	2	1	19	2	4	2	1	1	2	5	4	2	4	5	4	13
Lake	Total	658	119	37	23	21	858	49	30	33	82	107	126	110	113	101	72	73	65	52
	Males	374	67	19	10	10	479	28	13	18	54	79	93	87	88	84	51	49	44	33
	Females	284	52	18	13	12	379	21	17	15	28	28	33	23	25	17	21	24	21	19
Laporte	Total	88	21	5	2	1	116	10	6	21	30	34	20	27	28	26	35	39	51	54
	Males	57	11	3	1	1	72	7	1	12	20	23	12	14	16	17	19	26	28	28
	Females	31	10	2	1	1	44	3	5	9	10	11	8	13	12	9	16	13	23	26
Lawrence	Total	59	11	6	3	3	82	10	7	10	10	12	8	12	15	21	19	21	13	21
	Males	35	7	5	1	3	51	6	2	3	5	7	4	4	5	8	9	8	7	11
	Females	24	4	1	2	1	31	4	5	7	5	5	4	8	10	13	10	13	6	10
Madison	Total	145	24	7	5	1	182	14	11	19	28	29	34	33	28	34	40	44	56	69
	Males	73	14	4	2	1	94	8	3	6	13	14	19	14	12	15	24	25	29	49
	Females	72	10	3	3	1	88	6	8	13	15	15	15	19	16	19	16	19	27	20
Marion	Total	531	138	43	40	29	781	97	73	126	214	242	296	268	268	267	291	340	356	369
	Males	302	68	21	20	17	428	44	38	54	91	119	120	130	134	156	189	182	204	197
	Females	229	70	22	20	12	353	53	35	72	123	123	86	138	134	131	135	158	152	172
Marshall	Total	47	9	8	2	2	66	2	3	7	8	9	7	3	2	8	10	8	21	32
	Males	25	6	4	2	1	37	2	1	3	6	4	3	1	1	2	3	7	12	17
	Females	22	3	4	1	1	29	1	2	4	2	5	4	2	1	6	7	1	9	15
Martin	Total	25	9	7	3	3	44	6	4	9	5	3	3	3	1	4	5	4	11	10
	Males	15	4	3	2	2	22	4	3	4	1	2	3	2	1	2	5	4	7	6
	Females	10	5	4	1	1	22	2	1	5	4	1	3	1	1	2	5	4	4	4
Miami	Total	32	14	4	1	2	53	11	5	9	9	11	15	6	11	10	23	26	31	35
	Males	18	9	3	1	1	32	5	1	3	5	2	7	3	6	7	15	16	20	18
	Females	14	5	1	1	1	21	6	4	6	4	9	8	3	5	9	8	11	11	17
Monroe	Total	46	15	3	3	2	69	9	8	10	10	7	9	6	16	7	15	13	15	24
	Males	22	7	2	2	1	32	5	2	4	3	3	3	3	8	3	7	9	8	14
	Females	24	8	1	1	1	37	4	6	6	7	4	6	3	7	4	8	4	7	10

Montgomery	Total	44	3	2	1	2	52	4	8	8	12	14	10	15	15	7	24	26	30	30
	Males	25	2	2	1	1	28	2	6	4	8	7	4	4	7	3	10	9	20	16
	Females	19	1	2	1	1	24	2	2	4	4	7	6	11	8	4	14	17	10	14
Morgan	Total	30	6	3	5	3	47	4	5	12	6	12	4	9	6	7	7	21	23	24
	Males	14	2	1	3	1	31	3	6	6	1	9	1	3	3	4	5	10	12	13
	Females	16	4	2	2	2	26	1	3	6	6	3	3	4	3	3	2	11	11	11
Newton	Total	18	3	2	1	1	24	1	2	1	2	3	1	4	1	2	2	4	10	14
	Males	10	2	1	1	1	14	1	1	1	3	1	1	2	1	1	1	4	7	4
	Females	8	1	1	1	1	10	1	1	1	1	1	1	4	1	1	1	4	3	10
Noble	Total	30	6	3	3	2	44	3	5	2	9	11	6	9	10	15	25	13	26	27
	Males	20	2	2	2	1	27	2	4	2	8	4	3	4	5	11	17	8	15	13
	Females	10	4	1	1	1	17	1	1	1	1	7	3	5	5	4	8	5	11	14
Ohio	Total	4	2	2	1	1	6	1	4	1	2	2	2	4	2	1	3	1	2	4
	Males	4	1	1	1	1	5	1	2	1	1	1	2	2	1	1	1	1	1	3
	Females	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	2	1	1	1
Orange	Total	19	13	3	1	3	39	8	5	8	6	8	8	10	13	9	8	10	14	16
	Males	9	7	3	1	1	21	6	3	5	3	4	5	6	10	8	5	5	10	6
	Females	10	6	1	2	2	18	2	2	3	3	4	3	4	3	1	3	5	4	10
Owen	Total	18	4	4	1	3	29	4	4	5	1	7	1	5	7	3	5	6	10	11
	Males	8	3	3	1	1	12	3	3	2	1	4	1	3	2	2	1	3	3	7
	Females	8	3	3	3	3	17	1	1	1	1	3	1	2	5	1	4	3	7	4
Parke	Total	33	12	2	2	2	49	3	6	11	13	13	13	14	6	12	17	9	27	27
	Males	17	6	1	1	1	25	2	2	6	10	6	6	7	3	6	11	4	16	16
	Females	16	6	1	1	1	24	1	4	5	3	7	7	7	3	6	6	5	11	11
Perry	Total	28	6	3	1	3	37	4	3	6	10	6	3	9	5	11	7	6	12	13
	Males	11	4	1	1	1	16	3	2	2	2	2	2	4	4	6	4	2	4	8
	Females	17	2	2	2	2	21	1	1	4	8	6	1	5	1	5	3	4	8	5
Pike	Total	44	4	5	1	1	55	7	5	8	5	16	6	8	4	5	12	10	20	15
	Males	22	3	3	1	1	26	3	1	5	4	8	3	6	1	3	5	5	12	9
	Females	22	4	2	1	1	29	4	4	3	1	8	3	2	3	2	9	5	8	6
Porter	Total	31	2	1	2	1	36	1	2	4	14	6	9	10	9	10	11	17	14	17
	Males	15	2	1	1	1	19	1	2	4	10	4	4	7	7	5	7	10	6	9
	Females	16	1	1	1	1	17	1	1	1	4	2	5	3	2	5	4	7	8	8
Poey	Total	31	8	3	1	1	43	4	8	5	12	5	5	4	9	9	12	20	17	15
	Males	19	5	1	1	1	25	1	3	6	2	3	2	2	4	4	8	14	11	8
	Females	12	3	2	1	1	18	3	1	2	3	9	3	2	5	5	6	6	6	7

TABLE No. 3—Continued.

COUNTIES	SEX	Under 1	1	2	3	4	Under 5	5	10	15	20	25	30	35	40	45	50	55	60	65
		to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to	to
		1	1	2	3	4	5	9	14	19	24	29	34	39	44	49	54	59	64	69
Pulaski.....	Total.....	22	4	2	1	1	29	4	4	6	4	4	5	1	3	6	5	5	8	16
	Males.....	13	1	2	1	1	16	1	1	2	2	2	2	1	2	3	3	3	4	8
	Females.....	9	3	1	1	1	13	3	3	4	4	4	3	1	1	1	2	2	4	8
Putnam.....	Total.....	23	4	2	1	1	30	3	7	10	6	5	11	5	5	2	12	10	25	26
	Males.....	9	3	2	1	1	15	3	5	4	3	1	8	3	3	1	4	4	15	14
	Females.....	14	1	1	1	1	15	2	2	6	3	4	3	2	2	1	8	6	10	12
Randolph.....	Total.....	41	7	2	2	1	53	6	6	9	10	15	7	10	13	14	18	17	29	29
	Males.....	23	4	1	1	1	30	2	2	4	4	3	3	5	6	6	12	8	18	13
	Females.....	18	3	1	1	1	23	4	4	5	7	8	4	5	7	8	6	9	11	16
Ripley.....	Total.....	34	5	1	3	1	44	5	8	6	6	4	11	5	5	8	13	18	20	24
	Males.....	20	4	1	1	1	25	2	5	3	3	2	5	2	5	4	5	6	11	14
	Females.....	14	1	1	2	1	19	3	3	3	3	2	6	3	3	4	8	12	9	10
Rush.....	Total.....	31	1	5	3	1	47	6	4	5	4	5	3	7	9	8	7	16	22	16
	Males.....	18	1	1	1	1	20	2	4	1	3	3	1	5	4	5	5	3	10	13
	Females.....	13	1	4	2	1	20	4	1	4	1	2	2	2	5	3	4	6	9	7
Scott.....	Total.....	20	1	1	2	1	24	3	2	3	1	1	4	6	1	2	3	4	8	9
	Males.....	8	1	1	1	1	10	3	2	3	1	1	3	3	1	1	1	3	3	5
	Females.....	12	1	1	1	1	14	1	1	1	1	1	1	3	1	1	2	1	5	4
Shelby.....	Total.....	43	8	7	2	1	60	5	4	10	8	7	13	7	6	6	10	18	29	29
	Males.....	26	6	2	2	1	34	3	3	4	5	2	7	1	4	3	8	9	13	17
	Females.....	17	2	5	1	1	26	2	1	6	3	5	6	6	2	3	2	9	16	12
Spencer.....	Total.....	33	9	3	3	4	52	9	2	9	6	6	8	4	4	7	9	15	21	16
	Males.....	20	5	1	1	3	30	6	2	4	3	3	4	2	2	5	5	8	12	10
	Females.....	13	4	2	2	1	22	3	1	5	3	3	4	2	2	2	4	7	9	6
Stark.....	Total.....	14	3	3	1	1	20	6	3	4	6	3	3	4	4	2	6	6	11	9
	Males.....	9	1	2	1	1	12	3	2	1	3	1	3	1	2	5	1	4	5	3
	Females.....	5	2	1	1	1	8	3	1	3	5	2	2	1	1	1	5	7	4	5
Steuben.....	Total.....	19	2	1	2	1	25	2	1	3	6	5	9	6	4	11	6	15	21	19
	Males.....	12	1	1	1	1	13	1	1	2	3	2	4	1	2	5	3	9	13	6
	Females.....	7	1	1	1	1	12	1	1	1	3	3	5	5	2	6	3	6	8	13

St. Joseph.....	268	45	28	13	12	366	31	19	25	41	48	50	50	47	64	74	62	70	85
Total.....	153	31	14	8	8	214	23	7	12	22	28	30	31	27	36	42	37	43	35
Males.....	115	14	14	5	4	152	8	12	13	19	20	20	19	20	28	32	25	27	50
Females.....	65	13	9	3	1	94	8	7	11	5	11	10	9	12	13	7	7	19	37
Sullivan.....	38	10	4	3	1	56	2	5	1	6	6	5	2	7	6	5	4	11	18
Total.....	27	3	5	3	1	38	6	2	6	4	5	5	7	5	7	2	3	8	19
Males.....	10	1	1	2	1	13	1	3	3	1	4	1	4	5	6	2	3	6	21
Females.....	4	1	1	1	1	5	1	1	1	1	1	1	3	2	3	2	1	3	11
Switzerland.....	6	1	1	2	1	8	2	2	3	1	3	1	1	3	3	2	2	3	10
Tippecanoe.....	57	5	5	3	6	76	14	9	21	27	19	20	21	21	30	48	41	44	66
Total.....	32	2	3	2	3	42	7	4	14	10	8	11	12	18	29	25	22	22	36
Males.....	25	3	2	1	3	34	7	5	7	17	11	9	13	9	12	19	16	22	30
Females.....	35	4	4	3	3	49	5	2	6	8	7	8	9	8	4	12	11	15	19
Tipton.....	20	3	2	3	1	29	3	1	4	3	2	2	4	3	2	6	4	10	5
Total.....	15	1	2	2	2	20	2	2	5	4	4	6	5	5	2	6	7	5	14
Males.....	9	1	1	1	1	11	1	1	1	1	1	1	3	1	2	4	5	3	5
Females.....	3	1	1	1	1	3	1	1	1	1	1	1	1	1	1	2	2	2	3
Union.....	6	1	1	1	1	8	1	1	1	1	1	1	3	1	1	1	2	3	2
Vanderburgh.....	151	30	15	14	11	221	24	20	53	58	75	63	69	70	65	89	92	90	71
Total.....	87	17	4	10	6	124	12	11	33	28	44	33	41	44	33	47	59	53	36
Males.....	64	13	11	4	5	97	12	9	20	30	31	30	28	26	32	42	33	37	35
Females.....	80	16	7	9	3	115	9	6	9	15	13	5	10	14	10	15	18	29	23
Vermilion.....	44	5	2	4	1	56	6	5	7	11	9	3	7	10	5	7	13	16	15
Total.....	36	11	5	5	2	59	3	1	2	4	4	2	3	4	5	8	5	13	8
Males.....	235	55	23	8	12	333	32	21	26	43	51	75	61	64	84	75	85	98	99
Females.....	131	24	13	6	4	178	20	8	11	30	28	43	28	33	37	46	46	64	53
Vigo.....	104	31	10	2	8	155	12	13	15	19	23	32	33	31	47	29	37	34	46
Total.....	32	2	1	2	2	37	4	3	6	6	6	7	11	13	5	13	12	24	32
Males.....	24	2	1	2	1	26	2	2	5	1	2	4	10	7	3	7	6	16	19
Females.....	8	2	1	1	1	11	2	1	1	5	4	3	1	6	2	6	6	8	13
Wabash.....	13	2	2	1	1	18	2	8	3	4	3	5	6	6	5	4	3	6	9
Total.....	7	2	2	1	1	10	2	4	1	3	3	3	1	1	2	4	1	4	5
Males.....	6	2	2	1	1	8	2	4	2	1	3	2	5	5	2	4	2	2	4
Females.....	42	5	4	1	1	53	2	3	9	3	6	6	6	6	7	9	9	12	23
Warren.....	31	2	3	1	1	37	2	2	3	3	4	4	2	2	3	6	4	5	18
Total.....	11	3	1	1	1	16	1	1	6	3	2	6	4	4	4	3	5	7	5
Males.....	11	3	1	1	1	16	1	1	6	3	2	6	4	4	4	3	5	7	5
Females.....	11	3	1	1	1	16	1	1	6	3	2	6	4	4	4	3	5	7	5

TABLE No. 3—Continued.

COUNTIES	SEX	Under 1	1	2	3	4	Under 5	5	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69
Washington.....	Total.....	28	6	1	.....	4	39	5	2	7	5	9	8	1	8	5	2	14	10	22
	Males.....	15	5	1	.....	3	24	4	2	2	2	2	2	1	4	3	2	5	4	10
	Females.....	13	1	.....	.....	1	15	1	.....	5	3	7	5	.....	4	2	.....	9	6	12
Wayne.....	Total.....	66	10	3	8	.....	87	14	7	11	22	26	21	29	37	36	55	48	57	63
	Males.....	35	6	2	4	.....	47	9	3	5	14	15	10	12	22	19	26	18	34	37
	Females.....	31	4	1	4	.....	40	5	4	6	8	11	11	17	15	17	29	30	23	26
Wells.....	Total.....	28	5	1	4	1	39	4	1	5	5	4	4	2	6	7	10	14	17	19
	Males.....	13	3	.....	2	.....	18	2	1	2	3	2	2	2	4	4	1	9	9	14
	Females.....	15	2	1	2	1	21	2	.....	3	2	2	2	.....	2	6	6	5	8	5
White.....	Total.....	32	4	2	1	1	41	4	.....	8	5	6	10	2	4	6	15	9	14	21
	Males.....	20	1	2	1	1	25	3	.....	2	2	4	4	1	1	5	6	6	9	15
	Females.....	12	3	1	.....	.....	16	1	.....	6	3	2	1	1	3	1	9	3	5	6
Whitley.....	Total.....	21	4	4	1	2	32	2	1	7	.....	4	3	4	6	6	9	13	12	17
	Males.....	10	2	1	1	1	14	1	1	5	.....	1	3	2	3	3	3	7	5	9
	Females.....	11	2	3	.....	2	18	1	.....	2	.....	3	.....	2	3	3	6	6	7	8
Grand Total.....	Total.....	5,418	1,091	482	303	219	7,483	717	594	975	1,251	1,373	1,311	1,412	1,460	1,557	1,901	2,164	2,419	3,050
	Males.....	3,070	562	241	163	118	4,154	408	300	492	628	699	722	728	761	858	1,033	1,198	1,502	1,901
	Females.....	2,348	499	241	140	101	3,329	309	294	483	623	674	589	684	699	699	868	966	1,117	1,359



TABLE No. 3—Continued.

Deaths in Indiana by Months, Counties, Ages, Sex, Color, Nationality and Conjugal Condition for Year 1916.

COUNTIES	SEX	70 to 74	75 to 79	80 to 84	85 to 89	90 to 94	95 to Over	Unknown	White	Colored	American	Foreign	Not Reported	Single	Married	Widowed or Divorced	Not Reported	Total Deaths Including Non-residents	Non-resi- dents
Adams.....	Total.....	19	19	21	7	4	...	...	203	...	190	13	...	75	79	49	...	203	...
	Males.....	11	9	14	4	4	...	...	109	...	101	8	...	44	42	23	...	109	...
	Females.....	8	10	7	3	...	...	...	94	...	89	5	...	31	37	26	...	94	...
Allen.....	Total.....	100	93	75	37	12	1	...	1,238	9	1,034	206	7	420	527	295	5	1,247	105
	Males.....	52	52	35	12	6	...	...	682	6	566	117	...	255	314	114	5	683	...
	Females.....	48	41	40	25	6	1	...	556	3	468	89	2	165	213	181	...	569	...
Bartholomew.....	Total.....	28	29	27	7	3	1	...	281	4	274	10	1	87	133	64	1	285	...
	Males.....	16	14	12	3	2	...	...	147	2	141	7	1	49	81	18	1	149	...
	Females.....	12	15	15	4	1	1	...	134	2	133	3	...	38	52	46	...	136	...
Benton.....	Total.....	13	12	17	6	...	...	...	132	...	112	19	1	33	69	30	...	132	3
	Males.....	8	5	9	2	...	...	...	83	...	51	11	1	15	35	13	...	83	...
	Females.....	5	7	8	4	...	...	...	49	...	61	8	...	18	34	17	...	49	...
Blackford.....	Total.....	17	16	10	4	4	1	...	179	...	171	8	...	61	74	44	...	179	...
	Males.....	10	8	6	1	2	...	...	104	...	88	6	...	33	43	16	...	104	...
	Females.....	7	8	4	3	2	1	...	85	...	83	2	...	28	29	28	...	85	...
Boone.....	Total.....	35	31	30	9	9	...	...	305	2	305	2	...	88	145	74	...	307	2
	Males.....	18	21	22	5	5	...	...	189	...	188	2	...	56	83	31	...	189	...
	Females.....	19	10	8	4	4	...	...	136	1	137	...	...	32	62	43	...	137	...
Brown.....	Total.....	7	10	3	5	3	1	...	89	...	89	...	...	32	36	21	...	89	...
	Males.....	4	6	2	1	2	...	...	57	...	57	...	...	22	28	11	...	57	...
	Females.....	3	4	1	4	1	1	...	32	...	32	...	...	10	12	10	...	32	...
Carroll.....	Total.....	24	19	21	13	3	...	...	209	...	204	4	...	64	89	54	2	209	...
	Males.....	9	13	9	7	2	...	...	110	...	106	3	1	42	48	18	2	110	...
	Females.....	15	6	12	6	1	...	...	99	...	98	1	...	22	41	36	...	99	...
Cass.....	Total.....	62	54	35	18	3	2	1	590	5	537	54	4	181	259	182	3	595	92
	Males.....	30	29	12	6	3	1	1	323	...	296	29	3	113	156	88	3	330	...
	Females.....	32	25	23	12	...	1	...	266	5	239	25	1	68	103	94	...	265	...

TABLE No. 3—Continued.

COUNTIES	SEX	70 to 74	75 to 79	80 to 84	85 to 89	90 to 94	95 and Over	Unknown	White	Colored	American	Foreign	Not Reported	Single	Married	Widowed or Divorced	Not Reported	Total Deaths Including Non-residents	Non-resi- dents
Clark	Total	48	50	24	14	3	1	1	349	41	348	21	1	108	178	103	1	390	2
	Males	24	24	12	7	1	1	1	174	14	173	12	1	58	106	24	1	188	
	Females	24	26	12	7	2	1		175	27	168	9		50	73	79		202	
Clay	Total	22	28	19	11	5			355	8	336	27		133	152	78		363	3
	Males	14	17	6	4	2			173	6	162	17		48	80	31		179	
	Females	8	11	13	7	3			182	2	174	10		85	72	47		184	
Clinton	Total	45	42	27	14	4	4		362		363	7	2	100	183	107	2	362	4
	Males	23	27	12	4	2			193		188	4	1	45	87	39	2	183	
	Females	22	15	16	10	2			169		168	3	1	55	66	68		169	
Crawford	Total	20	15	12	4				159		158	1		41	81	37		159	
	Males	7	7	9	3				82		82			28	41	13		82	
	Females	13	8	3	1				77		76	1		13	40	24		77	
Davies	Total	31	18	24	10	3	1		331	8	328	10	1	125	139	74	1	339	1
	Males	20	8	12	4	1			165	3	164	9	1	60	82	25	1	168	
	Females	11	10	12	6	2	1		166	5	164	7		65	57	49		171	
Dearborn	Total	34	22	28	13	6	1		287	2	284	35		78	129	82		289	1
	Males	23	12	12	6	5	1		154	1	153	20		37	86	32		155	
	Females	11	10	16	7	1			133	1	119	15		41	43	50		134	
Deatur.	Total	24	27	27	16	6	1		257		244	13		73	111	73		257	3
	Males	10	17	10	6	2			137		128	9		42	69	26		137	
	Females	14	10	17	10	4	1		120		116	4		31	42	47		120	
Detailb.	Total	41	31	19	14	6			311		296	14	1	91	124	93	3	311	3
	Males	22	16	7	3	3			160		152	7	1	51	76	30	3	160	
	Females	19	15	12	7	3			151		144	7		40	48	63		151	
Delaware	Total	62	66	35	14	10	1		655	26	637	24		241	302	137	1	681	2
	Males	31	31	19	7	6			332	19	357	14		134	178	88	1	371	
	Females	33	25	16	7	4	1		303	7	300	10		107	124	79		310	
Dubois	Total	18	21	16	9	4		1	222		196	28		81	90	51		222	
	Males	8	12	5	4	2			101		94	17		37	47	17		101	
	Females	10	9	11	5	2		1	121		102	19		44	43	34		121	

Elkhart	Total	64	70	43	21	12				665	3	618	48	2	207	288	169	4	668	10
	Males	45	26	14	11	4				343		320	21	2	124	149	66	4	343	
	Females	19	44	29	10	8				322	3	298	27		83	139	103		325	
Fayette	Total	17	21	19	11	4				225	6	214	17		81	81	60		231	
	Males	6	11	7	6	1				114	3	100	8		44	40	24		117	
	Females	11	10	12	5	3				111	3	105	9		37	32	45		114	
Floyd	Total	43	38	29	16	6				383	33	387	49		124	163	129		416	14
	Males	16	21	14	8	4				186	17	188	25		72	88	53		213	
	Females	27	17	15	8	2				187	16	179	24		52	75	76		203	
Fountain	Total	25	28	20	13	5				268		257	9	2	72	120	74	2	268	1
	Males	14	12	7	9	1				141		136	4	1	43	60	27	2	141	
	Females	11	16	13	4	4				127		121	5	1	29	51	47		127	
Franklin	Total	27	23	18	10	6				204		171	33		73	72	59		204	
	Males	11	11	5	8	2				106		91	15		43	35	24		106	
	Females	16	12	13	2	4				98		80	18		30	33	35		98	
Fulton	Total	18	34	19	1	5				228		221	7		58	116	54		228	
	Males	13	19	9		3				121		118	3		33	70	18		121	
	Females	5	15	10	1	2				107		103	4		25	46	36		107	
Gibson	Total	31	32	16	17	6				328	18	334	12		114	156	76		346	
	Males	16	20	9	10	3				182		178	9		64	83	30		187	
	Females	15	12	7	7	3				146	13	156	3		50	63	46		159	
Grant	Total	153	109	64	24	12				889	45	877	37		264	369	277	4	914	65
	Males	124	85	44	13	9				538	34	545	27		175	217	177	3	572	
	Females	29	24	20	11	3				351	11	332	10		89	152	100	1	342	
Greene	Total	29	28	20	11	2				406	2	387	19	2	160	166	81	1	408	
	Males	17	12	11	6	1				212	1	197	14	2	80	92	31	1	213	
	Females	12	16	9	5	1				194	1	190	5		71	74	50		185	
Hamilton	Total	35	28	22	10	2				291	13	301	3		100	133	71		304	1
	Males	21	14	11	5					161	4	164	1		56	83	26		165	
	Females	14	14	11	5	2				130	9	137	2		44	50	45		139	
Hancock	Total	32	25	22	7	3				237		231	5	1	62	108	66	1	237	
	Males	16	13	13	4	2				129		126	3	1	41	63	24	1	129	
	Females	16	12	9	3	1				108		105	2		21	45	42		108	
Harrison	Total	23	15	24	5	3				222	1	209	14		76	95	52		223	
	Males	12	9	19	4	2				120		120	9		51	55	23		120	
	Females	11	6	5	1	1				93	1	89	5		25	40	29		94	

TABLE No. 3—Continued.

COUNTIES	SEX	70 to 74	75 to 79	80 to 84	85 to 89	90 to 94	95 and Over	Unknown	White	Colored	American	Foreign	Not Reported	Single	Married	Widowed or Divorced	Not Reported	Total Deaths Including Non-residents	Non-resi- dents
Hendricks.....	Total.....	24	35	26	7	3			254	5	256	3		69	125	65		259	1
	Males.....	14	20	12	3	1			134	2	135			38	76	22		136	
	Females.....	10	15	14	4	2			120	3	121	2		31	49	43		123	
Henry.....	Total.....	39	35	30	13	12	1		443	4	444	3		178	168	101		447	14
	Males.....	14	20	11	5	4			254	4	252	3		120	95	40		255	
	Females.....	25	15	19	8	8	1		189	3	192			58	73	61		192	
Howard.....	Total.....	37	33	34	13	5	1		495	17	497	15		204	188	117	3	512	7
	Males.....	19	13	16	6	2			262	7	263	6		127	101	38	3	269	
	Females.....	18	20	18	7	3	1		233	10	234	9		77	87	79		243	
Huntington.....	Total.....	36	45	22	21	4			364	1	340	24	1	98	169	97	1	365	1
	Males.....	19	23	9	7	3			194	1	182	12	1	60	102	32	1	195	
	Females.....	17	22	13	14	1			170		158	12		38	67	65		170	
Jackson.....	Total.....	26	34	29	8	5	1		344	2	33	12		124	134	88		346	
	Males.....	16	21	19	5	4			173	1	166	8		56	84	34		174	
	Females.....	10	13	10	3	1	1		171		168	4		68	50	54		172	
Jasper.....	Total.....	13	19	13	6	1			153	1	139	15		47	67	40		154	1
	Males.....	5	11	5	3				75	1	71	5		30	33	13		76	
	Females.....	8	8	8	3	1			78		68	10		17	34	27		78	
Jay.....	Total.....	34	36	31	9	3			301	3	292	11	1	92	122	90		304	
	Males.....	19	18	19	2	2			154	2	150	5	1	50	72	34		156	
	Females.....	15	18	12	7	1			147	1	142	6		42	50	56		148	
Jefferson.....	Total.....	49	31	19	24	5		1	367	10	350	25	2	102	166	108	1	377	62
	Males.....	29	20	9	11	2			223	6	218	10	1	64	118	46	1	229	
	Females.....	20	11	10	13	3		1	144	4	132	15	1	38	48	62		148	
Jennings.....	Total.....	22	13	11	1	2	1		155	5	153	7		53	72	35		160	5
	Males.....	15	5	3					87	3	87	3		3	36	45		90	
	Females.....	7	8	8	1	2			68	2	66	4		17	27	26		70	
Johnson.....	Total.....	23	30	20	9	5			244	5	246	3		85	101	63		249	
	Males.....	12	13	10	7	2			128	3	130	1		51	58	22		131	
	Females.....	11	17	10	2	3			116	2	116	2		34	43	41		118	

Knox.....	Total.....	45	26	32	6	3	.....	691	10	556	44	1	277	219	103	2	601	5
	Males.....	24	18	9	2	2	.....	306	4	283	26	1	145	115	48	2	310	.....
	Females.....	21	8	23	4	1	.....	285	6	273	18	.....	132	104	55	.....	291	.....
Kosciusko.....	Total.....	35	49	30	10	3	.....	358	.....	351	7	.....	108	153	97	.....	353	.....
	Males.....	22	22	13	6	1	.....	188	.....	183	5	.....	61	83	44	.....	188	.....
	Females.....	13	27	17	4	2	.....	170	.....	168	2	.....	47	70	53	.....	170	.....
Lagrange.....	Total.....	23	18	20	4	4	1	219	2	212	9	.....	76	95	50	.....	221	1
	Males.....	12	10	8	4	1	.....	121	1	117	5	.....	45	56	21	.....	122	.....
	Females.....	11	8	12	.....	3	1	98	1	95	4	.....	31	39	29	.....	99	.....
Lake.....	Total.....	45	35	26	13	6	1	1,955	43	1,430	540	28	1,187	608	163	35	1,998	23
	Males.....	23	24	13	8	1	1	1,236	32	847	394	27	740	404	89	35	1,293	.....
	Females.....	22	11	13	5	5	.....	719	11	583	146	1	447	204	79	.....	730	.....
Laporte.....	Total.....	55	50	48	25	11	3	676	13	502	184	3	233	280	173	3	698	20
	Males.....	29	27	21	11	6	1	380	9	288	99	2	154	165	68	2	339	.....
	Females.....	26	23	27	14	6	2	296	4	214	85	1	79	115	106	1	300	.....
Lawrence.....	Total.....	27	23	25	2	4	1	339	5	335	9	.....	132	139	72	1	344	2
	Males.....	13	12	12	1	1	.....	167	2	164	5	.....	76	68	24	1	169	.....
	Females.....	14	11	13	1	3	1	172	3	171	4	.....	56	71	48	.....	176	.....
Madison.....	Total.....	75	54	54	15	5	1	813	12	784	40	1	278	368	187	2	825	6
	Males.....	37	31	32	6	2	.....	426	5	404	26	1	152	198	79	2	431	.....
	Females.....	38	23	22	9	3	1	387	7	380	14	.....	126	160	108	.....	394	.....
Marion.....	Total.....	302	268	172	85	32	5	4,123	663	4,231	538	17	1,642	1,951	1,175	18	4,796	213
	Males.....	155	144	84	25	12	.....	2,147	330	2,155	305	17	993	1,076	415	18	2,477	.....
	Females.....	147	124	88	60	20	5	1,976	333	2,076	233	.....	674	875	760	.....	2,309	.....
Marshall.....	Total.....	29	36	25	12	6	1	235	.....	268	25	2	88	133	71	3	295	1
	Males.....	19	20	16	5	3	1	161	.....	143	16	2	51	78	29	3	161	.....
	Females.....	10	16	9	7	3	.....	134	.....	125	9	.....	37	55	42	.....	134	.....
Martin.....	Total.....	17	11	9	2	1	1	153	.....	150	2	1	71	44	38	.....	153	.....
	Males.....	9	4	2	1	.....	.....	73	.....	72	1	.....	39	21	13	.....	73	.....
	Females.....	8	7	7	.....	1	1	80	.....	78	1	1	32	23	25	.....	80	.....
Miami.....	Total.....	52	26	31	13	5	.....	387	1	359	26	.....	107	175	105	1	388	1
	Males.....	27	15	13	7	3	.....	204	.....	186	18	.....	57	106	40	1	204	.....
	Females.....	25	11	18	6	2	.....	183	1	173	11	.....	50	69	65	.....	184	.....
Monroe.....	Total.....	16	21	22	12	3	.....	284	7	286	5	.....	124	115	52	.....	291	.....
	Males.....	11	13	15	6	1	.....	148	2	147	3	.....	67	73	20	.....	150	.....
	Females.....	5	8	7	6	2	.....	136	5	139	2	.....	57	42	32	.....	141	.....

TABLE No. 3—Continued.

COUNTIES	SEX	70 to 74	75 to 79	80 to 84	85 to 89	90 to 94	95 to 99	Unknown	White	Colored	American	Foreign	Not Reported	Single	Married	Widowed or Divorced	Not Reported	Total Deaths Including Non-Residents	Non-Resi- dents
Montgomery	Total	42	42	33	14	9			380	6	384	10	1	106	173	116		395	1
	Males	23	22	21	8	4			202	0	199	6	1	58	101	47		206	
	Females	19	20	12	6	5			187	2	185	4		48	72	69		189	
Morgan	Total	24	23	20	10	4	2		269	1	267	3		93	106	71		270	9
	Males	13	14	10	5	3	2		141	1	140	2		49	63	30		142	
	Females	11	9	10	5	1			128		127	1		44	43	41		128	
Newton	Total	8	12	7	2	2	4		104		94	10		31	42	30	1	104	
	Males	4	7	3		1	2		47		40	7		18	16	12	1	47	
	Females	4	5	4	2	1			57		54	3		13	26	18		57	
Noble	Total	43	37	28	9	8	2		332		310	20	2	85	155	92		332	6
	Males	23	18	20	7	5	1		189		181	16	2	56	97	46		199	
	Females	18	19	8	2	3	1		133		129	4		29	58	46		133	
Ohio	Total	7	7	7	2	2	1		54	5	58	1		19	22	17	1	59	
	Males	5	2	3	1				25	3	27	1		10	12	5	1	26	
	Females	2	5	4	1	2	1		29	2	31			9	10	12		31	
Orange	Total	26	21	18	5	1			220	4	227	5	1	79	105	48	1	233	
	Males	18	9	7	3				132	2	128	5	1	50	62	21	1	134	
	Females	8	12	11	2	1			97	2	99			29	43	27		99	
Owen	Total	22	22	20	9	3	1		173	1	167	7		51	70	53		174	
	Males	11	13	12	5	2			88	1	86	3		28	43	18		89	
	Females	11	9	8	4	1	1		85		81	4		23	27	35		85	
Parke	Total	21	26	20	6	6	1		237	3	287	13		103	128	69		300	30
	Males	8	8	13	4	3			156		151	5		53	76	27		186	
	Females	13	18	7	2	3	1		141	3	136	8		50	52	42		144	
Perry	Total	16	6	18	9	6			184	3	162	24	1	66	73	47	1	187	
	Males	5	3	5	4	2			76	2	69	8	1	32	36	9	1	76	
	Females	11	3	13	5	4			108	1	93	16		34	37	38		109	
Pike	Total	16	11	9	7	1	1		218	2	218	2		93	87	40		220	
	Males	8	4	3	2				104	2	105	1		48	48	10		108	
	Females	8	7	6	5	1	1		114		113	1		45	39	30		112	

Porter.....	Total.....	20	26	18	19	5	3	.....	251	.....	184	64	3	70	98	79	3	251	.....
	Males.....	11	10	11	8	4	1	.....	139	.....	97	40	2	47	58	31	3	139	.....
	Females.....	9	16	7	11	1	2	.....	112	.....	87	24	1	23	41	48	.....	112	.....
Posey.....	Total.....	24	14	14	9	2	1	.....	299	.....	206	23	2	79	101	49	2	231	.....
	Males.....	15	8	6	6	2	1	.....	118	.....	114	14	2	46	61	21	2	118	.....
	Females.....	9	6	8	3	2	1	.....	91	.....	92	9	.....	33	40	28	.....	101	.....
Pulaski.....	Total.....	14	19	7	4	2	1	.....	143	.....	130	13	.....	46	62	35	.....	143	1
	Males.....	9	15	.....	2	2	1	.....	76	.....	69	6	.....	22	38	16	.....	76	.....
	Females.....	5	4	7	2	2	.....	67	.....	61	.....	.....	.....	24	24	19	.....	67	.....
Putnam.....	Total.....	17	22	25	11	2	1	.....	232	.....	229	6	.....	74	100	61	.....	235	9
	Males.....	10	15	16	5	2	.....	127	.....	124	5	.....	44	53	32	.....	129	.....	
	Females.....	7	7	9	6	2	1	.....	105	.....	105	1	.....	30	47	29	.....	106	.....
Randolph.....	Total.....	36	37	42	10	5	2	.....	367	.....	357	11	.....	99	177	92	.....	368	4
	Males.....	18	19	17	4	2	2	.....	181	.....	177	4	.....	50	101	30	.....	181	.....
	Females.....	18	18	25	6	3	.....	186	.....	180	7	.....	49	76	62	.....	187	.....	
Ripley.....	Total.....	23	29	19	12	5	1	.....	260	.....	223	37	.....	79	120	60	1	260	.....
	Males.....	9	14	13	6	2	1	.....	134	.....	113	21	.....	48	63	23	.....	134	.....
	Females.....	14	15	6	6	3	.....	126	.....	110	16	.....	31	57	37	.....	126	.....	
Rush.....	Total.....	22	21	26	10	7	.....	224	.....	223	5	.....	70	108	60	.....	238	.....	
	Males.....	15	16	12	4	1	.....	114	.....	119	2	.....	36	66	19	.....	121	.....	
	Females.....	7	15	14	6	6	.....	110	.....	114	3	.....	34	42	41	.....	117	.....	
Scott.....	Total.....	10	4	7	2	.....	.....	93	.....	91	2	.....	39	33	21	.....	93	.....	
	Males.....	7	3	4	.....	.....	.....	53	.....	53	.....	.....	22	22	9	.....	53	.....	
	Females.....	3	1	3	2	.....	.....	40	.....	38	2	.....	17	11	12	.....	40	.....	
Shelby.....	Total.....	38	50	23	8	6	1	.....	332	.....	330	8	.....	105	137	96	.....	338	.....
	Males.....	21	25	5	2	2	.....	164	.....	166	2	.....	64	75	29	.....	168	.....	
	Females.....	17	25	18	6	4	1	.....	168	.....	164	6	.....	41	62	67	.....	170	.....
Spencer.....	Total.....	27	31	29	3	1	1	.....	261	.....	*10 252	18	1	88	100	82	1	271	.....
	Males.....	13	14	11	1	1	1	.....	134	.....	*6 130	10	1	52	64	24	1	141	.....
	Females.....	14	17	18	2	.....	.....	126	.....	122	8	.....	36	36	58	.....	130	.....	
Stark.....	Total.....	17	10	10	5	1	.....	133	.....	113	20	1	1	40	60	32	2	134	.....
	Males.....	6	3	7	5	.....	.....	66	.....	57	9	1	.....	21	29	15	2	67	.....
	Females.....	11	7	3	.....	1	.....	67	.....	56	11	.....	19	31	17	.....	67	.....	
Steuben.....	Total.....	16	24	24	8	5	.....	210	.....	204	6	.....	45	106	59	.....	210	.....	
	Males.....	10	10	7	4	2	.....	98	.....	95	3	.....	27	56	15	.....	98	.....	
	Females.....	6	14	17	4	3	.....	112	.....	109	3	.....	18	50	44	.....	112	.....	

TABLE No. 3—Continued.

COUNTIES	SEX	70 to 74	75 to 79	80 to 84	85 to 89	90 to 94	95 to Over	Unknown	White	Colored	American	Foreign	Not Reported	Single	Married	Widowed or Divorced	Not Reported	Total Deaths Including Non-residents	Non-residents
St. Joseph.....	Total.....	88	84	56	16	6	3	1	1,273	12	965	287	3	565	476	242	2	1,285	36
	Males.....	48	31	28	8	2	1	1	699	6	535	167	3	346	268	90	1	705	90
	Females.....	40	53	28	8	4	2	1	574	6	460	120	1	219	208	152	1	580	1
Sullivan.....	Total.....	22	26	22	8	3	1	1	331	321	321	7	3	134	115	80	2	331	331
	Males.....	12	10	8	3	1	1	1	167	161	161	4	2	76	65	24	2	167	167
	Females.....	10	16	14	5	2	1	1	164	160	160	3	1	58	50	56	1	164	164
Switzerland.....	Total.....	13	15	14	5	5	1	1	126	121	121	4	1	27	56	42	1	126	126
	Males.....	9	7	8	2	3	1	1	57	66	66	1	1	13	36	17	1	67	67
	Females.....	4	8	6	3	2	1	1	59	55	55	4	1	14	20	25	1	59	59
Tippecanoe.....	Total.....	89	71	57	24	3	3	1	968	7	626	73	6	192	290	216	7	705	121
	Males.....	52	40	30	10	1	1	1	376	5	327	48	6	119	175	80	7	381	381
	Females.....	37	31	27	14	2	2	1	322	2	299	25	1	73	115	136	1	324	324
Tipton.....	Total.....	17	18	11	3	2	1	1	214	1	209	6	1	71	103	41	1	215	215
	Males.....	13	10	5	2	1	1	1	106	1	103	4	1	40	49	18	1	107	107
	Females.....	4	8	6	1	1	1	1	108	1	106	2	1	31	54	23	1	108	108
Union.....	Total.....	13	13	10	5	1	1	1	76	3	74	5	2	21	32	26	1	79	79
	Males.....	7	6	3	1	1	1	1	29	2	27	2	1	6	15	8	1	29	29
	Females.....	6	7	7	4	1	1	1	47	3	47	3	1	15	17	18	1	50	50
Vanderburgh.....	Total.....	99	90	47	29	7	5	1	1,185	161	1,171	170	5	472	521	347	6	1,246	93
	Males.....	43	50	18	14	3	1	1	635	92	643	79	5	285	306	130	6	727	727
	Females.....	56	49	29	15	4	4	1	550	69	528	91	1	187	215	217	1	619	619
Vermillion.....	Total.....	22	17	18	6	2	1	1	353	4	332	24	1	164	122	69	2	357	357
	Males.....	10	12	6	2	1	1	1	198	2	184	15	1	96	68	34	2	200	200
	Females.....	12	5	12	4	2	1	1	155	2	148	9	1	68	54	35	1	157	157
Vigo.....	Total.....	98	59	50	23	11	3	1	1,327	70	1,275	119	3	574	525	290	8	1,397	21
	Males.....	48	26	25	11	3	3	1	701	39	663	72	2	334	292	106	8	740	740
	Females.....	50	33	25	12	8	3	1	626	31	609	47	1	240	233	184	1	657	657
Wabash.....	Total.....	34	28	39	3	6	1	1	297	1	284	13	1	71	143	83	1	298	1
	Males.....	20	15	18	3	6	1	1	173	1	163	9	1	49	91	32	1	173	173
	Females.....	14	13	21	3	5	1	1	124	1	121	4	1	22	52	51	1	125	125



Warren.....	Total.....	8	9	11	4	1	1	15	111	3	1	42	43	29	1	115	1
Males.....	2	4	2	1	1	1	1	45	44	3	1	22	22	16	1	45	.....
Females.....	6	5	9	3	1	1	1	70	67	3	1	20	27	23	1	70	.....
Warrick.....	Total.....	20	18	18	5	1	1	209	203	14	.....	78	85	54	.....	217	.....
Males.....	9	10	8	1	1	1	1	116	108	9	.....	53	47	17	.....	117	.....
Females.....	11	8	10	4	1	1	1	93	95	5	.....	25	38	37	.....	100	.....
Washington.....	Total.....	17	15	16	10	1	1	196	194	2	.....	73	94	29	.....	196	.....
Males.....	11	11	9	5	.....	.....	.....	104	103	1	.....	41	52	11	.....	104	.....
Females.....	6	4	7	5	.....	.....	.....	92	91	1	.....	32	42	18	.....	92	.....
Wayne.....	Total.....	72	78	48	22	11	1	711	681	63	1	200	358	186	1	745	45
Males.....	36	45	32	9	4	1	1	384	366	31	1	118	202	77	1	398	.....
Females.....	36	33	16	13	7	.....	.....	327	315	32	.....	82	156	109	.....	347	.....
Wells.....	Total.....	25	20	19	3	3	1	208	204	4	.....	67	82	58	1	208	1
Males.....	10	9	13	1	.....	.....	.....	106	103	3	.....	36	42	27	1	106	.....
Females.....	15	11	6	2	3	1	1	102	101	1	.....	31	40	31	.....	102	.....
White.....	Total.....	17	29	20	6	.....	1	218	204	13	1	73	92	53	.....	218	.....
Males.....	10	16	7	2	.....	.....	.....	123	111	11	1	48	54	21	.....	123	.....
Females.....	7	13	13	4	.....	1	.....	95	93	2	.....	25	38	32	.....	95	.....
Whitley.....	Total.....	16	22	14	8	1	.....	177	170	7	.....	49	79	49	.....	177	.....
Males.....	9	11	9	4	1	.....	.....	91	86	5	.....	27	45	19	.....	91	.....
Females.....	7	11	5	4	.....	.....	.....	86	84	2	.....	22	34	30	.....	86	.....
Grand Total.....	Total.....	3,330	3,067	2,409	1,038	431	89	36,831	34,709	3,419	121	13,211	15,099	9,093	146	38,249	.....
Males.....	1,803	1,640	1,174	476	194	29	5	19,755	18,384	2,002	109	7,811	9,036	3,506	142	20,495	.....
Females.....	1,527	1,447	1,235	562	237	60	3	17,076	16,325	1,417	12	5,500	6,063	5,587	4	17,754	.....

\*Spencer County—African—Males 1 Females 1.

TABLE No. 4.

*Number of Deaths from all Causes and Rate per 1,000 Population. Important Ages. Number of Deaths from Important Causes. (Stillbirths Excluded.)*

STATE AND COUNTIES	IMPORTANT AGES						DEATHS FROM IMPORTANT CAUSES																			
	Total Deaths Reported for Year 1916 (All Causes)	Rate per 1,000 Popula- tion including non- residents	Under 1 Year					Pulmonary Tuberculosis	Other forms of Tuberculosis	Typhoid Fever	Diphtheria and Croup	Scarlet Fever	Measles	Whooping Cough	Lobar and Broncho Pneumonia	Diarrhoea and Enteritis (Under 2 Years)	Cerebro-spinal Fever	Acute Anterior Polyomyelitis	Influenza	Puerperal Septicemia	Cancer	External Causes	Smallpox	Deaths of Non-residents		
State of Indiana . . . . .	2,860,920	38,249	13.3	5,418	2,065	717	504	975	13,434	3,259	564	604	386	96	204	252	3,297	1,675	45	51	968	223	2,383	2,893	1	378
Northern Counties . . . . .	998,000	13,330	13.3	2,187	750	241	179	281	4,672	839	164	190	112	31	103	58	1,151	736	14	22	278	72	886	1,140	...	...
Adams . . . . .	22,000	203	9.2	31	18	3	5	6	79	15	...	2	3	...	6	2	19	9	...	...	7	4	20	13	...	...
Allen . . . . .	102,791	1,247	12.1	163	51	16	24	26	437	74	18	11	3	2	7	5	115	29	...	...	25	3	106	102	...	105
Benton . . . . .	12,688	132	10.4	16	9	...	1	1	55	7	3	1	1	1	1	1	18	3	...	...	7	1	6	13	...	3
Blackford . . . . .	16,195	175	11.0	28	8	3	2	2	65	21	4	1	1	1	1	1	15	9	...	...	2	...	14	11	...	...
Carroll . . . . .	17,980	209	11.6	36	8	3	2	1	96	12	3	1	1	1	1	2	15	6	...	...	8	...	15	16	...	...
Cass . . . . .	37,788	595	15.7	57	18	8	8	11	223	47	8	8	3	...	3	2	49	7	...	...	19	3	38	47	...	92
Dekalb . . . . .	25,429	311	12.2	29	19	4	7	6	144	9	4	2	4	...	10	1	26	6	...	...	3	16	16	22	...	3
Elkhart . . . . .	51,403	668	13.0	94	22	9	9	14	264	36	8	4	6	2	8	4	43	13	...	...	1	5	45	48	...	10
Fulton . . . . .	16,879	228	13.5	26	3	4	2	4	95	14	1	1	1	1	1	1	18	6	...	...	9	1	22	11	...	...
Grant . . . . .	62,436	914	17.4	83	42	18	8	23	431	68	11	12	5	4	3	3	55	22	...	...	18	1	51	55	...	65
Howard . . . . .	36,377	512	14.0	86	40	16	10	20	162	38	14	9	15	1	1	4	58	16	...	...	2	3	25	41	...	7
Huntington . . . . .	29,372	365	12.4	48	10	5	7	5	163	21	4	3	...	...	...	...	32	9	...	...	9	1	25	27	...	...
Jasper . . . . .	13,106	154	11.7	23	4	1	3	3	61	8	1	1	...	2	...	1	13	6	...	...	4	2	16	10	...	1
Jay . . . . .	25,127	304	12.1	51	13	4	3	6	134	13	1	6	...	...	3	...	29	13	...	...	19	2	21	13	...	...
Kosciusko . . . . .	28,156	358	12.7	42	25	10	4	6	158	16	5	5	4	1	7	...	29	11	...	...	6	4	33	19	...	...

Lagrange	15,148	221	14,61	31	14	3	4	8	104	15	2	1	2	1	18	5	1	2	5	1	13	1
Lake	115,165	1,998	17,3	658	28	10	6	21	178	125	15	65	18	3	12	10	229	387	1	2	15	23
Laport	49,170	689	14,0	88	43	11	13	3	2	3	1	67	31	2	1	11	2	45	60	20	20	
Marshall	24,265	285	12,1	4	19	2	3	7	141	12	8	1	1	4	24	8	1	22	17	1	1	
Miami	30,570	388	12,6	32	21	11	5	9	105	22	4	2	2	1	2	4	29	9	2	1	28	
Newton	10,529	104	12,4	18	6	1	1	2	41	5	1	1	1	1	9	6	1	1	13	6	1	
Noble	24,819	332	13,3	30	14	3	5	2	154	17	5	1	1	1	20	4	1	1	2	33	6	
Porter	20,890	251	12,0	31	5	1	2	4	106	13	2	2	1	1	22	7	4	1	22	32	1	
Pulaski	13,312	143	10,7	22	7	4	4	4	65	6	3	1	1	1	14	4	3	6	8	4	1	
Stark	10,632	134	12,6	14	6	4	3	4	51	9	1	1	1	1	6	3	1	3	10	15	1	
Steuben	14,504	210	14,4	19	6	2	1	3	96	11	1	1	1	1	19	1	2	8	21	15	1	
St. Joseph	96,884	1,285	13,2	268	98	31	19	25	338	120	24	20	30	5	6	2	97	92	2	8	80	
Wabash	26,956	298	11,0	32	5	4	3	6	151	16	2	1	3	1	16	3	1	12	2	25	1	
Wells	22,668	208	9,1	28	11	4	1	5	90	13	2	3	2	1	22	3	1	4	2	17	1	
White	17,632	218	12,3	32	9	4	8	94	14	3	3	1	1	1	29	6	1	2	1	12	1	
Whitley	17,127	177	10,3	21	11	2	1	7	78	12	1	1	1	1	11	4	2	2	1	18	8	
Central Counties	1,178,368	16,376	13,9	3,060	824	317	263	416	5,702	1,461	276	260	156	51	87	132	1,391	600	24	19	378	103
Bartholomew	25,153	285	11,3	24	12	7	5	10	124	30	5	3	1	1	4	13	5	10	3	26	21	
Boone	25,173	307	12,1	25	13	8	7	5	144	25	9	7	1	2	2	21	6	1	18	13	15	
Brown	7,975	89	11,1	9	6	3	1	3	39	9	1	2	1	1	9	4	4	5	4	9	2	
Clay	33,398	363	10,8	51	24	10	10	15	131	24	1	8	6	2	1	13	27	11	15	4	22	
Clinton	27,439	362	13,2	34	15	8	5	6	164	22	5	8	3	1	3	1	29	12	18	2	35	
Deaatur	18,953	257	13,5	32	8	6	3	3	127	24	3	7	1	1	3	3	25	2	5	17	13	
Delaware	52,944	681	12,7	122	38	10	10	14	235	66	19	12	2	3	8	5	47	25	12	4	36	
Fayette	14,873	231	15,5	31	16	5	1	5	90	20	3	4	4	1	6	1	11	10	6	3	17	
Fountain	20,659	268	12,9	29	9	4	5	4	120	17	1	2	1	4	30	8	14	2	22	21	1	
Franklin	15,335	204	13,3	17	10	4	4	4	113	15	4	4	1	1	14	7	1	11	9	13	1	
Hamilton	27,166	304	11,1	43	9	3	7	10	120	25	5	7	1	1	28	14	2	11	1	17	13	
Hancock	19,030	237	12,4	26	8	4	3	3	108	19	3	1	2	1	6	16	7	8	17	23	1	
Hendricks	20,840	259	12,4	23	9	3	3	7	122	18	2	5	2	1	3	31	3	11	2	17	19	
Henry	31,431	447	14,2	70	37	9	7	16	161	36	10	5	6	4	7	3	38	31	9	1	16	
Johnson	20,639	249	12,0	44	9	2	2	9	110	24	5	6	1	2	19	9	2	4	18	10	1	
Madison	66,374	825	15,4	145	37	14	11	19	273	71	19	13	3	6	2	16	49	41	18	9	51	
Marion	296,661	4,736	15,7	531	230	97	73	126	1,234	493	92	80	61	15	26	25	440	158	8	7	301	
Monroe	24,683	291	11,7	46	23	9	8	10	98	35	1	12	8	5	5	3	19	24	2	5	3	
Montgomery	30,864	395	12,8	44	8	4	8	8	170	34	4	3	1	4	2	30	7	14	3	34	27	
Morgan	21,544	270	12,5	30	17	4	5	12	107	28	4	5	3	1	1	35	6	1	6	4	11	
Owen	14,053	174	12,3	18	11	4	4	5	88	15	3	1	1	2	3	20	5	2	8	11	15	
Parke	22,214	300	13,5	33	16	3	6	11	107	64	3	2	3	1	4	26	17	8	2	13	20	
Putnam	20,580	235	11,4	23	7	3	7	10	104	23	5	1	1	2	1	2	20	7	1	16	7	
Randolph	29,533	368	12,4	41	12	6	6	9	161	26	11	6	1	1	3	27	7	1	12	24	4	

TABLE No. 4—Continued.

STATE AND COUNTIES	IMPORTANT AGES						DEATHS FROM IMPORTANT CAUSES																			
	Population Estimated 1916	Total Deaths Reported for Year 1916 (All Causes)	Rate per 1,000 Population, including non-resident						Pulmonary Tuberculosis	Other Forms of Tuberculosis	Typhoid Fever	Diphtheria and Group	Scarlet Fever	Measles	Whooping Cough	Lobar and Broncho Pneumonia	Diarrhoea and Enteritis (Under 2 Years)	Cerebro-spinal Fever	Acute Anterior Polomyelitis	Influenza	Puerperal Septicemia	Cancer	External Causes	Smallpox	Deaths of Non-residents	
				Under 1 Year	1 to 4 inclusive	5 to 9 inclusive	10 to 14 inclusive	15 to 19 inclusive																		25 Years and Over
Rush.....	19,539	238	12.1	31	9	6	4	5	102	20	3	1	2	2	2	1	17	7	2	8	16	15	16	15	15	15
Shelby.....	27,967	338	12.0	43	17	5	4	10	154	30	4	4	2	2	4	2	1	25	10	1	17	24	24	22	22	22
Tippecanoe.....	41,043	705	17.1	57	19	14	9	21	313	46	7	2	2	2	4	4	51	12	2	1	14	7	45	69	121	121
Tipton.....	17,614	215	12.2	35	14	5	2	6	71	24	2	9	2	2	2	3	28	4	1	5	16	13	17	13	13	13
Union.....	6,260	79	12.6	9	2	...	1	1	47	2	2	...	1	...	...	3	6	5	1	5	1	1	7	4	4	4
Vermilion.....	20,670	357	17.2	80	35	9	6	9	86	24	8	6	11	1	1	6	34	25	1	6	3	3	14	43	43	43
Vigo.....	100,855	1,397	13.8	235	98	32	21	26	343	101	19	22	22	1	7	19	142	87	2	1	21	9	96	130	21	21
Warren.....	10,899	115	10.5	13	5	2	8	3	42	11	...	4	2	1	2	1	11	2	2	1	14	5	8	8	8	8
Wayne.....	46,147	745	16.1	66	21	14	7	11	295	50	9	11	4	4	1	1	55	22	2	1	14	5	58	58	45	45
Southern Counties.....	684,552	8,543	12.4	1,171	491	159	152	278	3,060	959	124	154	118	14	14	62	755	339	7	10	312	48	451	572	1,185	1,185
Clark.....	30,260	390	12.8	44	16	3	8	6	188	37	6	4	3	2	2	2	29	12	1	18	2	18	33	33	2	2
Crawford.....	12,057	159	13.1	15	12	5	1	2	68	40	2	2	2	2	2	...	11	2	...	...	16	7	9	9	9	9
Davies.....	27,747	339	12.2	62	19	3	8	5	112	30	4	7	2	2	3	6	34	14	2	...	10	1	18	20	1	1
Dearborn.....	21,776	289	13.2	30	8	2	3	8	133	17	2	5	2	1	1	1	22	4	2	2	9	1	23	28	1	1
Dubois.....	19,877	222	11.1	38	12	5	7	6	81	34	1	9	1	1	1	1	16	13	...	...	18	1	12	9	9	9
Floyd.....	30,378	416	13.7	42	11	6	6	19	170	43	8	6	1	1	...	4	27	16	...	1	19	1	32	32	14	14
Gibson.....	30,337	346	11.4	43	23	4	10	13	126	27	6	4	6	3	2	5	34	10	18	1	18	1	24	23	...	...
Green.....	41,043	408	9.9	72	30	10	2	14	133	38	3	4	3	2	1	3	38	23	1	16	3	19	29	19	19	19
Harrison.....	20,232	223	11.0	33	9	1	3	8	98	26	...	5	10	...	1	1	36	11	...	...	10	1	15	14	...	...
Harrison.....	24,727	346	14.0	44	18	4	9	16	137	38	9	5	10	...	1	1	39	3	...	...	11	20	20	14	...	...
Jackson.....	20,483	377	18.4	26	9	6	3	3	168	33	4	1	1	1	2	1	39	6	...	...	9	1	15	19	62	62
Jefferson.....	14,248	160	11.2	21	4	2	4	2	66	11	1	4	1	1	...	1	17	2	...	1	6	1	8	6	5	5
Jennings.....	42,358	601	14.1	108	67	16	14	21	151	58	9	9	14	3	2	12	59	60	1	15	2	21	56	5	5	
Knox.....	33,070	344	10.4	69	23	10	7	10	103	32	13	9	5	1	...	4	18	11	1	...	16	2	17	25	2	2
Lawrence.....	13,335	153	11.4	25	19	6	4	9	51	14	2	2	9	1	...	1	17	9	...	1	10	1	10	10	10	10
Martin.....	4,329	59	13.6	4	2	1	4	1	30	6	...	1	...	...	1	1	7	...	...	...	2	6	6	6	6	6

[illegible]

TABLE No. 5.

*Number of Deaths by Counties, all Causes and Rate per 1,000 Population. Important Causes with Rate per 100,000 Population. (Stillbirths Excluded.)*

STATE AND COUNTIES		DEATHS FROM IMPORTANT CAUSES																		
Population Estimated 1916	Total Deaths Reported for Year 1916 (All Causes)	Rate per 1,000 Population, including non-residents	Pulmonary Tuberculosis	Other Forms of Tuberculosis	Typhoid Fever	Diphtheria and Croup	Scarlet Fever	Measles	Whooping Cough	Lobar and Broncho Pneumonia	Diphtheria and Erythema (Under 2 Years)	Cerebro-spinal Fever	Acute Anterior Poliomyelitis	Influenza	Puerperal Septicemia	Cancer	External Causes	Smallpox	Rate per 1,000 Population, deaths of Non-residents excluded	
2,860,920	38,249	13.3	113.9	19.7	21.1	13.5	3.3	7.1	8.8	115.0	58.5	1.5	1.7	33.8	7.7	83.3	101.1	.03		
Northern Counties.....																				
Adams.....	22,000	203	9.2	68.1	9.0	13.6		27.2	9.0	86.3	40.9			31.8	18.1	90.9	59.0		12.9	
Allen.....	102,791	1,247	12.1	72.0	10.7	2.9	1.9	6.8	4.8	112.0	28.2			24.3	2.9	103.2	96.3		11.1	
Benton.....	12,688	132	10.4	55.2	7.8			7.8	7.8	63.1	23.6			55.2	7.8	47.3	102.5		10.1	
Blackford.....	16,195	179	11.0	129.7	24.7	6.2	6.2		6.2	92.6	55.5			12.3		86.4	67.9			
Carroll.....	17,980	209	11.6	66.7	16.6	5.5		5.5	11.1	83.4	21.0		11.1	44.4		33.4	88.9			
Cass.....	37,788	595	15.7	124.4	21.6	7.9		7.9	5.2	129.7	18.5		5.2	50.2	7.9	100.6	124.4		13.3	
DeKalb.....	25,429	311	12.2	35.4	15.7	7.8	15.7		39.3	3.9	102.3	19.6		11.8	62.9	3.9	86.5		12.1	
Elkhart.....	51,403	668	13.0	70.0	15.5	7.7	11.6	3.8	15.5	7.7	93.3	25.2	1.9	19.4	9.7	87.5	93.3		12.8	
Fulton.....	16,879	228	13.5	82.9	5.9			5.9	17.7	5.9	77.0	29.6		53.3	5.9	130.4	65.2			
Grant.....	52,436	914	17.4	110.6	20.9	22.8	9.5	7.6	5.7	5.7	104.9	41.9	1.9	34.3	1.9	97.2	104.0		16.1	
Howard.....	36,377	512	14.0	99.0	38.4	24.7	41.2	2.7	2.7	11.0	159.5	46.0	5.4	27.5	8.2	68.7	112.7		13.8	
Huntington.....	29,372	365	12.4	71.5	13.6	10.2			6.8	108.9	30.6			30.6	3.4	85.1	91.9		12.3	
Jasper.....	13,109	154	11.7	61.0	7.6	7.6		15.2		7.8	99.2	45.8		30.5	15.2	122.1	76.3		11.6	
Jay.....	25,121	304	12.1	51.7	3.9	23.8			11.9		115.4	51.7	3.9	75.6	7.0	83.6	51.7			
Kosciusko.....	28,156	358	12.7	56.8	17.7	17.7	14.2	3.5	24.8		103.0	39.0	7.1	21.3	14.2	117.2	67.5			
Lagra age.....	15,148	221	14.6	99.0	13.5	6.6	13.5		52.8	32.9	118.9	32.9	6.6	32.9		99.0	85.8		14.5	

Lake Laporte Marion Marshall Miami Madison Newton	115,165 24,370 30,570 20,570 30,570 10,529	1,998 332 338 235 338 104	17.3 12.6 12.6 12.6 12.6 12.4	68.5 71.9 71.9 71.9 71.9 47.5	8.2 26.4 22.3 14.0 6.5	35.6 26.4 22.3 14.0 6.5	9.8 6.1 4.1 3.2 6.5	1.6 4.1 16.4 3.2 9.5	6.5 6.1 16.4 9.5	5.4 120.3 14.0 94.8 9.5	125.5 186.3 98.9 94.8 85.5	212.1 329.4 32.9 37.0	5 4 4 6.5	1.0 27.7 26.4 26.4	4.3 91.5 3.2 9.5	9.8 40.6 91.6 123.6	35.0 90.6 70.0 89.4 57.0	17.1 13.6 12.1 12.6	
Noble Porter Pulaski Sarko Seuben	24,819 20,860 13,312 10,632 14,504	332 251 143 126 210	13.3 12.0 10.7 12.6 14.4	68.5 62.2 37.5 84.6 75.8	20.1 9.5 23.5 ...	4.0 9.5 45.0 37.6 13.7	4.0 4.7 23.5 9.4	...	...	16.1 7.5 28.2	12.0 105.3 105.2 56.4 96.5	80.6 33.5 30.0 28.2 6.8	16.1 33.5 30.0 28.2 6.8	4.0 4.0 40.0 6.8	4.0 19.1 45.0 28.2 55.1	8.0 4.7 ...	133.0 105.3 60.1 141.1 144.8	60.4 153.2 30.0 141.1 103.4	13.1 11.0 9.1 12.1 12.6
St. Joseph Walsh Wells White Whitley	96,884 26,956 22,668 17,632 17,127	1,285 298 208 218 177	13.2 11.0 9.1 12.3 10.3	123.9 59.3 57.3 79.4 70.1	24.7 50.3 8.8 17.0 5.8	20.6 3.7 13.2 17.0	30.9 11.1 8.8 17.0 5.8	5.1 3.7 8.8 17.0 5.8	6.1 11.1 13.2 11.3 23.3	2.0 59.3 8.8 164.6 64.2	100.1 59.3 97.0 164.6 64.2	94.9 11.1 13.2 34.0 23.3	94.9 11.1 13.2 34.0 23.3	2.0 3.7 5.6 11.6	9.2 44.5 17.6 11.6	8.2 92.7 8.8 5.8	82.5 95.3 75.0 124.8 106.1	105.3 85.3 48.5 134.8 46.7	12.0 11.0 9.1 10.7 13.0
Central Counties	1,178,368	16,376	13.9	124.0	23.4	22.0	13.2	4.3	7.3	11.2	118.1	50.9	2.0	1.6	32.0	87.4	88.8	100.2	13.4
Bartholomew Boone Brown Clay Clinton Decatur	25,153 25,173 7,975 83,398 27,439	285 307 89 363 362	11.3 12.1 11.1 10.8 13.2	119.3 99.3 112.8 71.8 80.2	19.8 35.7 12.5 25.0 18.2	11.9 27.8 25.0 23.9 29.1	3.9 3.9 12.5 17.9 10.9	3.9 7.9 12.5 5.9	7.9 7.9 2.9 10.9	15.9 83.4 112.8 80.8 3.6	51.6 23.8 50.6 32.9 105.7	19.8 23.8 32.9 38.7 43.7	19.8 23.8 32.9 38.7 43.7	2.0 3.9 3.9 44.9 65.6	37.7 71.5 62.7 44.9 65.6	11.9 51.6 50.6 65.8 7.2	83.5 59.6 112.8 77.8 87.5	103.4 83.5 65.8 77.8 87.5	12.1 12.1 10.7 13.0
Deaaware Fayette Fountain Franklin Hamilton Hancock Hendricks Henry Johnson Madison	52,944 14,873 20,669 15,335 27,166 19,030 20,840 31,431 20,639	681 231 268 204 304 237 259 447 249	13.5 12.7 12.9 13.3 11.1 12.4 12.4 14.2 12.0	126.4 105.8 134.5 97.8 92.0 99.8 86.3 114.5 116.3	15.8 35.8 20.1 26.1	36.8 20.7 ...	5.2 3.7 26.9 4.8 25.7	5.2 3.7 26.9 4.8 25.7	...	15.8 15.1 40.3 19.3 6.5	131.7 98.7 74.9 45.3 91.3	10.5 47.2 67.2 38.7 45.6	10.5 47.2 67.2 38.7 45.6	...	22.6 26.3 67.8 71.7 40.5	36.3 68.0 106.5 58.7 62.5	68.4 71.7 101.7 84.8 47.8	89.5 68.4 106.5 84.8 47.8	12.3 13.3 12.9 12.9
Marion Monroe Montgomery Morgan	66,374 296,661 24,683 30,664 21,544	825 4,786 291 395 270	12.4 15.7 11.7 12.8 12.5	107.0 166.2 141.8 110.9 130.1	28.6 31.0 4.0 22.8 18.5	19.5 26.9 48.6 13.0	4.5 20.5 32.4 23.2	4.5 20.5 32.4 23.2	3.0 8.7 9.7 13.0	24.1 8.4 20.2 6.5	73.8 148.4 77.0 97.8	61.7 53.2 97.2 27.8	61.7 53.2 97.2 27.8	1.5 2.3 8.1	27.1 17.5 20.2 45.6	13.5 101.5 60.7 51.1	87.3 114.3 52.6 78.9	12.3 15.0 15.0 12.1	
Owen Putnam Randolph Rush	14,053 22,214 20,580 29,533 19,539	174 300 235 368 238	12.3 13.5 11.4 12.4 12.1	106.7 288.2 111.8 88.0 102.4	21.3 13.5 24.3 37.2 15.3	7.1 9.0 4.8 20.3 5.1	7.1 13.5 4.8 20.3 5.1	7.1 13.5 4.8 20.3 5.1	4.6 4.5 9.7 13.0 10.2	14.2 18.0 9.7 9.7 5.1	142.3 117.1 97.1 23.7 87.0	35.5 76.5 34.0 23.7 35.8	35.5 76.5 34.0 23.7 35.8	14.2 7.6 23.7 23.7 87.0	56.9 36.0 38.8 40.6 40.9	78.2 9.0 77.7 81.2 81.9	106.7 90.0 34.0 81.2 76.8	12.1 12.1 12.3	

TABLE No. 5—Continued.

STATE AND COUNTIES	Population Estimated 1916	Total Deaths Reported for Year 1916 (All Causes)	Rate per 1,000 Population, including non-residents	DEATHS FROM IMPORTANT CAUSES												Rate per 1,000 Population, deaths of non-residents excluded				
				Pulmonary Tuberculosis	Other Forms of Tuberculosis	Typhoid Fever	Diphtheria and Croup	Scarlet Fever	Measles	Whooping Cough	Lobar and Broncho Pneumonia	Dysentery and Enteritis (Under 2 years)	Cerebro-spinal Fever	Acute Anterior Polyomyelitis	Influenza		Puerperal Septicemia	Cancer	External Causes	Smallpox
Shelby.....	27,967	338	12.0	107.3	14.3	14.3	7.1	4.8	9.7	3.5	89.4	35.7	11.3	3.5	60.8	17.0	85.8	78.6		14.2
Tippecanoe.....	41,043	705	17.1	112.1	17.0	4.8	4.8	9.7	9.7	4.8	121.3	29.2	11.3	2.4	34.1	17.0	109.6	168.1		
Tipton.....	17,614	215	12.2	136.3	11.3	51.1	11.3	11.3	17.0	17.0	147.6	22.7	11.3	5.6	28.3	15.9	90.8	73.8		
Union.....	6,260	79	12.6	31.9	11.3	15.9	15.9	11.3	17.0	17.0	95.8	79.8	11.3	5.6	79.8	15.9	111.8	63.9		
Vermillion.....	20,670	357	17.2	116.1	38.7	29.0	53.2	4.8	4.8	29.0	164.5	120.9	4.8	29.0	14.5	14.5	67.7	208.0		
Vigo.....	100,885	1,397	13.8	100.2	18.8	21.8	21.8	9.1	6.9	18.8	140.9	86.3	1.9	9.1	20.8	8.9	95.2	128.9		13.6
Warren.....	10,899	115	10.5	101.0	36.7	36.7	18.3	9.1	18.3	101.0	18.3	18.3	4.3	2.1	30.3	10.8	73.4	73.4		10.4
Wayne.....	46,147	745	16.1	108.4	19.5	23.8	8.6	2.0	2.0	2.1	119.2	47.8	4.3	2.1	30.3	10.8	125.7	125.7		15.1
Southern Counties.....	684,552	8,543	12.4	140.1	18.1	22.4	17.2	2.0	2.0	9.0	110.3	49.5	1.0	1.4	45.5	7.0	65.8	83.5	1	12.2
Clark.....	30,260	390	12.8	122.3	19.8	13.2	9.9	18.3	18.3	6.6	95.8	39.6	3.3	1.4	59.4	6.6	59.4	109.0		12.8
Crawford.....	12,057	159	13.1	332.0	16.5	16.5	16.5	16.5	16.5	91.2	16.5	50.4	3.3	1.4	132.8	3.3	58.0	74.6		
Daviess.....	27,747	339	12.2	108.1	14.4	25.2	7.2	10.8	10.8	21.6	122.6	50.4	10.8	9.1	36.0	3.6	64.9	72.1		12.1
Dea born.....	21,776	289	13.2	78.0	9.1	2.2	9.1	4.5	4.5	101.0	18.3	18.3	18.3	9.1	41.3	4.5	105.6	128.6		13.2
Dubois.....	19,877	222	11.1	171.1	5.0	45.2	5.0	5.0	5.0	5.0	80.5	65.4	5.0	5.0	90.6	5.0	60.4	45.2		
Floyd.....	30,378	416	13.7	141.6	26.3	19.7	3.2	13.1	13.1	13.1	88.9	52.6	3.2	3.2	62.5	3.2	105.4	105.4		13.2
Gibson.....	30,337	346	11.4	89.0	19.7	13.2	19.7	4.8	4.8	3.2	112.1	32.9	2.4	2.4	59.3	3.2	79.1	75.8		
Green.....	41,043	408	9.9	92.6	7.3	9.7	7.3	4.8	4.8	12.1	92.6	56.0	2.4	2.4	38.9	7.3	46.3	70.6		
Harrison.....	20,232	223	11.0	128.5	24.7	24.7	24.7	4.9	4.9	14.8	79.0	54.3	4.9	4.9	49.4	4.9	74.1	69.2		
Jackson.....	24,727	346	14.0	153.7	36.4	20.2	40.4	4.0	4.0	4.0	157.8	12.1	12.1	44.5	44.5	80.9	56.6			
Jefferson.....	20,483	377	18.4	161.1	19.5	4.8	4.8	9.7	9.7	4.8	190.4	29.3	29.3	43.9	43.9	4.8	73.2	92.8		15.3
Jennings.....	14,248	160	11.2	77.2	7.0	28.0	7.0	7.0	7.0	28.3	141.7	14.0	2.3	7.0	42.1	7.0	56.1	35.1		10.8
Knox.....	42,358	601	14.1	136.9	21.2	21.2	33.0	7.0	4.7	28.3	139.3	141.7	2.3	7.0	35.4	4.7	49.5	132.2		14.0
Lawrence.....	33,070	344	10.4	96.7	39.3	27.2	15.1	7.5	7.5	7.5	127.5	67.5	3.0	7.5	48.3	6.0	51.4	75.6		10.3
Martin.....	13,335	153	11.4	105.0	15.0	37.5	67.5	7.5	7.5	7.5	127.5	67.5	3.0	7.5	48.3	6.0	51.4	75.6		10.3





TABLE No. 6.

*Number of Deaths by Cities, all Causes and Rate per 1,000 Population. Important Ages. Number of Deaths from Important Causes. (Stillbirths Excluded.)*

CITIES	Population Estimated 1916	Total Deaths Reported for Year 1916 (All Causes)	Rate per 1,000 Population including non-residents	IMPORTANT AGES						DEATHS FROM IMPORTANT CAUSES																		
				Under 1 Year	1 to 4 inclusive	5 to 9 inclusive	10 to 14 inclusive	15 to 19 inclusive	65 Years and Over	Pulmonary Tuberculosis	Other forms of Tuberculosis	Typhoid Fever	Diphtheria and Croup	Scarlet Fever	Measles	Whooping Cough	Lobar and Broncho Pneumonia	Diphtheria and Erysipelas (Under 2 Years)	Cerebro-spinal Fever	Acute Anterior Poliomyelitis	Influenza	Puerperal Eclampsia	Cancer	External Causes	Smallpox	Deaths of Non-residents		
Cities of the First Class, Population 100,000 and over.....	265,890	4,278	16.0	472	234	93	61	117	1,052	378	79	63	55	10	24	22	350	145	7	6	54	23	205	277	....	41		
Indianaapolis.....	265,890	4,278	16.0	472	234	93	61	117	1,052	378	79	63	55	10	24	22	350	145	7	6	54	23	205	277	....	41		
Cities of the Second Class, Population 45,000 to 100,000.....	282,282	3,873	13.7	575	230	74	62	106	954	368	57	66	55	8	14	21	381	182	4	3	46	22	254	288	....	159		
Evansville.....	76,467	1,095	14.3	123	60	23	20	42	286	144	13	25	21	2	1	5	114	33	...	2	17	9	48	74	....	19		
Fort Wayne.....	73,338	936	12.7	104	40	12	15	23	302	72	16	10	1	1	6	3	87	22	...	...	12	3	84	72	....	109		
Terre Haute.....	68,897	965	14.0	140	56	17	15	20	211	77	12	16	9	1	4	11	103	56	2	1	10	5	70	85	....	16		
South Bend.....	63,580	877	13.7	208	74	22	12	21	203	75	16	15	24	4	3	2	77	71	2	...	7	5	52	57	....	15		
Cities of the Third Class, Population 20,000 to 45,000.....	304,643	4,904	16.1	1,014	318	98	73	128	1,155	337	86	107	39	6	21	27	460	476	5	6	80	41	243	539	....	240		
Gary.....	33,802	597	17.6	214	66	19	8	8	28	22	8	14	10	1	3	3	65	134	...	...	2	10	14	115	....	26		
East Chicago.....	26,938	457	16.9	239	72	8	4	3	9	24	2	12	3	...	5	...	68	153	...	1	...	1	9	49	....	2		
Muncie.....	25,535	331	12.9	50	14	7	6	11	98	29	13	11	1	...	4	2	19	11	1	...	4	2	18	21	....	8		
Hammond.....	25,195	514	20.4	118	35	9	12	12	46	29	3	31	3	...	3	1	68	63	...	...	2	6	18	86	....	82		
Richmond.....	24,369	361	14.8	39	13	4	6	7	128	31	2	4	3	...	...	...	30	18	2	...	9	2	27	23	....	1		
Anderson.....	23,626	362	15.3	66	19	3	3	10	195	29	12	6	3	1	...	...	...	40	21	...	1	10	4	22	27	....	7	
Elkhart.....	21,327	276	12.9	44	9	3	3	9	87	18	4	1	2	1	1	3	20	9	...	...	3	2	13	22	....	7		
Michigan City.....	21,112	291	13.7	51	10	6	6	7	89	26	7	7	2	...	...	...	24	17	...	...	2	1	12	25	....	9		
Lafayette.....	21,061	403	19.1	38	11	8	6	16	132	26	6	1	1	3	2	...	30	7	2	...	5	8	25	59	....	30		

New Albany.....	20,629	335	16.2	31	9	4	5	16	132	34	6	4	1	1	1	14	1	16	1	26	18
Logansport.....	20,470	323	15.7	41	11	7	6	9	112	16	4	7	1	2	2	24	6	2	23	31	37
Marion.....	20,360	343	16.8	39	26	8	4	9	96	25	9	3	1	1	1	22	12	9	32	7	7
Kokomo.....	20,210	311	15.3	44	23	12	5	11	93	28	11	6	8	3	3	31	11	7	16	23	16
<b>Cities of the Fourth Class,</b>																					
Population 10,000 to 20,000.....	182,429	2,081	13.6	204	131	37	45	64	690	152	35	27	19	9	18	161	103	3	1	39	16
Vincennes.....	17,215	250	15.0	39	21	6	6	8	62	28	6	4	3	3	2	25	25	1	1	15	24
Mishawaka.....	15,046	171	11.3	33	18	2	4	3	38	9	3	1	2	2	2	11	12	1	1	15	23
Peru.....	12,996	156	12.0	12	6	1	1	2	65	8	2	1	1	1	1	13	2	2	1	14	13
Lafayette.....	12,260	194	15.8	23	11	3	1	10	67	10	3	3	3	3	3	18	9	1	3	1	17
Newcastle.....	11,258	165	14.6	28	22	6	3	3	46	13	4	2	6	2	5	10	17	1	1	2	18
Elwood.....	11,028	133	12.0	21	6	3	3	3	34	12	2	1	1	3	2	10	2	3	2	9	10
Crawfordsville.....	10,731	154	14.3	16	3	2	2	1	69	9	2	1	1	1	2	14	3	6	3	10	14
Shelbyville.....	10,665	147	13.7	13	7	1	2	5	57	14	1	4	1	1	1	9	3	1	3	9	11
Huntington.....	10,662	161	15.1	22	7	3	4	2	60	7	2	2	1	1	1	12	3	7	14	16	1
Jeffersonville.....	10,412	143	13.7	15	3	1	5	3	64	13	2	1	1	1	1	8	4	4	4	11	11
Evansville.....	10,115	140	13.6	25	10	2	3	3	48	4	1	2	2	1	1	11	7	6	3	12	18
Bloomington.....	10,019	143	14.2	25	9	2	6	8	46	17	7	4	1	1	1	17	11	2	1	3	9
Bedford.....	10,016	115	11.4	22	8	4	4	6	34	8	7	1	3	3	3	3	5	5	1	4	11
<b>Cities of the Fifth Class,</b>																					
Population under 10,000.....	303,296	4,276	14.1	585	209	69	43	103	1,576	328	60	61	29	4	23	31	321	19	2	7	115
Frankfort.....	9,399	162	17.2	15	5	4	1	4	70	6	2	2	1	1	1	17	7	3	20	11	53
Columbus.....	9,153	112	12.2	14	2	3	1	3	39	13	2	2	1	1	2	5	1	4	1	8	6
Goshen.....	8,864	138	15.5	19	4	1	1	1	58	6	1	2	1	1	1	9	1	2	2	15	16
Walsh.....	8,717	109	12.5	13	2	1	1	1	58	4	1	1	1	1	1	7	1	1	7	13	1
Connersville.....	8,188	138	16.8	24	9	2	2	2	46	10	2	3	3	2	4	4	6	4	2	10	10
Whiting.....	7,887	118	14.9	56	14	4	3	3	12	8	2	6	2	1	4	8	40	1	1	1	13
Clinton.....	7,884	115	14.5	33	6	2	1	2	18	12	2	2	2	1	1	9	5	1	1	6	14
Washington.....	7,834	125	15.9	19	4	1	1	2	32	14	1	4	1	1	2	16	5	5	9	9	3
Valparaiso.....	7,337	83	11.3	6	2	1	1	3	38	1	1	1	1	1	1	4	1	1	1	12	1
Linton.....	7,321	70	10.7	13	6	2	2	7	22	7	1	1	1	1	1	7	4	5	1	2	6
Lebanon.....	6,974	95	13.6	8	6	3	2	2	46	9	1	3	1	1	1	8	2	1	7	4	3
Madison.....	6,834	105	15.1	6	3	3	1	2	43	2	2	1	1	1	1	5	2	3	8	6	4
Princeton.....	6,648	100	15.0	7	7	2	2	3	26	8	1	2	2	1	1	11	3	3	7	8	1
Harford City.....	6,562	68	10.3	12	3	1	1	1	23	9	3	1	2	1	1	9	1	2	6	4	1
Seymour.....	6,305	94	14.9	10	5	1	1	7	33	7	3	1	2	1	1	8	5	2	7	5	1
Kendallville.....	5,781	77	13.3	5	3	1	1	1	32	4	3	1	1	1	1	7	1	1	12	3	5

TABLE No. 6—Continued.

CITIES	IMPORTANT AGES					DEATHS FROM IMPORTANT CAUSES																				
	Population Estimated 1916	Total Deaths Reported for Year 1916 (All Causes)	Rate per 1,000 Popula- tion, including non- residents	Under 1 Year				65 Years and Over																		
				1 to 4 inclusive	5 to 9 inclusive	10 to 14 inclusive	15 to 19 inclusive	Pulmonary Tuberculosis	Other Forms of Tuberculosis	Typhoid Fever	Diphtheria and Croup	Scarlet Fever	Measles	Whooping Cough	Lobar and Broncho Pneumonia	Diarrhoea and Enteritis (Under 2 Years)	Cerebro-spinal Fever	Acute Anterior Polyomyelitis	Influenza	Puerperal Septicæmia	Cancer	External Causes	Smallpox	Deaths of Non-residents		
Mt. Vernon	5,778	72	12.4	8	2	1	1	22	10	2																
Greenburg	5,610	85	15.1	6	3	1	1	51	8	1																
Portland	5,295	88	16.6	18	4	3	2	31	3																	
Bluffton	5,237	60	11.4	11	1	1	2	23	3																	
Noblesville	5,213	68	13.0	10	3	2	1	16	6	1																
Rushville	5,115	77	15.0	8	3	2	2	30	6	1																
Alexandria	5,096	59	11.5	9	1	1	1	16	8	1																
Aurora	4,790	71	14.8	9	2	2	4	36	4	1																
Martinsville	4,774	80	16.7	11	2	1	1	29	4	2																
Franklin	4,747	49	10.3	6	3	1	2	23	5	1																
Warsaw	4,650	76	16.3	6	2	1	1	29	6	1																
Decatur	4,631	44	9.5	9	1	1	1	20	2																	
Garrett	4,613	64	13.8	6	8	2		17	2																	
Sullivan	4,610	45	9.7	5	4			14	7																	
Winchester	4,546	65	14.3	4	2	1	2	32	5																	
Greenfield	4,448	67	15.0	7	1	1	1	30	6	1																
Boonville	4,404	65	14.7	15	3			28	8	4																
Mitchell	4,268	50	11.7	7	4	3	1	15	3	1																
Tipton	4,230	50	12.1	9	2	1	2	16	2																	
Auburn	4,179	51	12.2	1	6	2	2	24	3	2																
Lawrenceburg	3,930	60	15.2	13	1	1	1	19	4	1																
Plymouth	3,928	46	11.7	4	5			24	3	2																
Greencastle	3,850	34	8.8	4	2			17	3																	
Tell City	3,709	29	7.8	5	2			13	6																	



TABLE No. 7.

*Number of Deaths by Cities, all Causes and Rate per 1,000 Population. Important Causes with Rate per 100,000 Population. (Stillbirths Excluded.)*

CITIES	DEATHS FROM IMPORTANT CAUSES																			Rate per 1,000 Popula- tion, deaths of non- residents excluded
	Population Estimated 1916	Total Deaths Reported for Year 1916 (All Causes)	Rate per 1,000 Popula- tion, including non- residents	Pulmonary Tuberculosis	Other Forms of Tuberculosis	Typhoid Fever	Diphtheria and Croup	Scarlet Fever	Measles	Whooping Cough	Lobar and Broncho Pneumonia	Diarrhoea and Enteritis (Under 2 years)	Cerebro-spinal Fever	Acute Anterior Polyomyelitis	Influenza	Puerperal Septicemia	Cancer	External Causes	Smallpox	
Cities of the First Class, Population of 100,000 and over	255,800	4,278	16.0	142.2	29.7	23.7	20.6	3.7	9.0	8.2	131.7	54.5	2.6	2.2	20.3	8.6	77.1	104.2	41	
Indianapolis.....	265,800	4,278	16.0	142.2	29.7	23.7	20.6	3.7	9.0	8.2	131.7	54.5	2.6	2.2	20.3	8.6	77.1	104.2	41	
Cities of the Second Class, Population 45,000 to 100,000	282,292	3,873	13.7	130.4	20.2	23.3	10.4	2.8	4.9	7.4	135.0	64.4	1.4	1.0	16.3	7.7	90.0	102.0	13.1	
Evansville.....	76,467	1,005	14.3	188.4	17.0	32.7	27.4	2.6	1.3	6.5	149.1	43.1	.....	2.6	22.2	11.7	62.7	96.7	14.0	
Fort Wayne.....	73,338	936	12.7	98.1	21.8	13.6	1.3	1.3	8.1	4.0	118.6	30.0	.....	.....	16.3	4.0	114.5	98.1	11.2	
Terre Haute.....	68,897	965	14.0	111.8	17.4	23.2	13.0	1.4	5.8	15.9	149.5	81.2	2.9	1.4	14.5	7.2	101.6	123.4	13.8	
South Bend.....	63,580	877	13.7	118.0	25.1	23.6	37.7	6.2	4.7	3.1	121.1	111.7	3.1	.....	11.0	7.8	81.7	33.3	13.5	
Cities of the Third Class, Population 20,000 to 45,000	304,643	4,904	16.1	110.6	28.2	35.9	12.8	1.9	6.8	8.8	151.0	156.3	1.6	1.9	26.2	13.4	79.7	177.0	15.3	
Gary.....	33,802	597	17.6	65.0	23.6	41.4	29.6	2.9	8.8	8.8	192.3	396.5	.....	.....	5.9	29.6	41.4	340.3	16.8	
East Chicago.....	26,938	457	16.9	89.1	7.4	44.5	11.1	.....	18.5	.....	252.5	568.2	.....	3.7	.....	3.7	33.4	182.0	10.8	
Muncie.....	25,335	331	12.9	113.6	50.9	43.0	3.9	.....	15.6	7.8	74.4	43.0	3.9	.....	15.6	7.8	70.5	82.2	12.6	
Hammond.....	25,195	514	20.4	115.1	11.9	123.4	11.9	.....	11.9	3.9	269.9	250.1	.....	.....	7.9	2.3	71.4	341.4	17.1	
Richmond.....	24,369	301	14.8	127.3	8.2	16.4	12.3	.....	.....	.....	123.1	75.6	8.2	.....	36.9	8.2	110.9	94.4	14.7	
Anderson.....	23,626	362	15.3	123.8	50.8	25.4	12.7	4.2	.....	.....	169.4	88.9	.....	4.2	42.3	16.9	93.1	114.3	15.0	
Elkhart.....	21,327	276	12.9	84.4	18.7	4.6	9.3	4.6	4.6	14.0	93.8	42.2	.....	.....	14.0	9.3	60.9	103.2	12.6	
Michigan City.....	21,112	291	13.7	123.2	33.1	33.1	9.4	.....	.....	.....	113.7	89.6	.....	.....	0.4	4.7	56.8	118.4	13.8	

Lafayette.....	21,061	403	10.1	123.4	22.7	4.7	4.7	14.2	9.4	142.5	33.2	9.4	4.7	22.7	37.9	118.7	280.1	17.7
New Albany.....	20,629	335	16.2	164.9	29.1	19.4	4.8	.....	.....	14.5	92.1	67.8	4.8	77.6	4.8	140.6	126.1	15.3
Ligonport.....	20,470	323	15.7	78.1	19.5	34.2	4.8	.....	9.7	9.7	117.3	28.3	9.7	77.6	9.7	112.4	151.6	14.4
Marion.....	20,369	343	16.8	122.8	44.2	14.7	4.9	.....	4.9	9.8	108.1	58.9	4.9	44.2	.....	53.4	157.1	16.5
Kokomo.....	20,210	311	15.3	138.5	54.4	29.7	39.5	.....	.....	14.8	133.4	54.4	.....	34.6	9.8	79.1	113.8	14.5
Cities of the Fourth Class, Population 10,000 to 20,000.....																		
152,429	2,081	13.6	99.7	22.9	17.7	12.4	5.9	11.8	11.8	99.0	67.5	1.9	.6	25.5	10.5	85.3	123.4	14.4
Vincennes.....	17,215	259	15.0	162.7	34.8	23.2	17.4	17.4	11.6	5.8	145.2	145.2	.....	5.8	5.8	87.1	139.4	14.7
Michigan.....	15,046	171	11.3	59.8	19.9	6.6	13.2	.....	13.2	7.3	73.1	70.8	.....	6.6	19.9	73.1	182.9	10.9
Peru.....	12,996	186	12.0	61.5	15.4	7.6	.....	.....	7.6	7.6	100.1	15.4	.....	15.4	7.6	107.8	100.1	11.8
Laporte.....	12,266	194	15.6	81.5	24.4	24.4	.....	.....	24.4	8.1	146.8	73.4	8.1	24.4	8.1	138.6	89.7	15.2
New Castle.....	11,258	165	14.6	115.5	35.5	17.7	53.3	17.7	44.4	88.8	151.2	.....	.....	8.8	8.8	17.7	160.0	14.4
Elwood.....	11,028	133	12.0	108.9	18.1	9.0	.....	27.2	18.1	9.0	90.7	18.1	.....	27.2	18.1	81.6	90.7	14.0
Crawfordsville.....	10,731	154	14.3	83.8	18.6	9.3	.....	.....	18.6	9.3	130.5	27.9	.....	55.9	.....	93.2	130.5	14.0
Shelbyville.....	10,665	147	13.7	131.3	9.3	37.5	9.3	.....	.....	9.3	84.4	28.1	9.3	28.1	.....	84.4	103.2	.....
Huntington.....	10,662	161	15.1	65.6	18.7	18.7	.....	.....	.....	18.7	112.6	28.1	.....	.....	.....	131.3	150.1	15.0
Jeffersonville.....	10,412	143	13.7	124.9	19.2	9.6	9.6	.....	.....	76.8	38.4	.....	.....	67.2	.....	38.4	105.6	.....
Brasil.....	10,115	140	13.8	39.5	9.8	19.7	19.7	9.8	9.8	59.3	108.8	69.2	.....	59.3	29.6	118.7	178.0	13.5
Bloomington.....	10,019	143	14.2	169.8	.....	39.9	9.9	.....	.....	9.9	69.9	110.0	19.9	9.9	29.9	89.9	79.9	14.1
Bedford.....	10,016	115	11.4	76.9	69.9	9.9	29.9	.....	.....	29.9	29.9	49.9	.....	49.9	9.9	39.9	110.0	11.3
Cities of the Fifth Class, Population Under 10,000.....																		
303,296	4,276	14.1	108.2	19.7	20.1	9.5	1.3	7.5	10.2	105.9	63.3	.6	2.3	37.9	6.9	97.6	98.2	13.9
Frankfort.....	9,396	162	17.2	80.3	21.2	21.2	10.6	.....	10.6	10.6	180.9	74.4	.....	31.9	.....	212.8	117.0	16.6
Columbus.....	9,153	112	12.2	142.0	21.8	.....	.....	.....	.....	21.8	54.6	10.9	.....	43.7	10.9	87.4	54.6	12.1
Goshen.....	8,894	138	15.5	67.7	11.3	22.5	.....	.....	.....	11.3	101.5	11.3	11.3	22.5	22.5	169.2	180.5	15.2
Wabash.....	8,717	109	12.5	45.8	.....	11.4	11.4	.....	.....	80.3	11.4	.....	11.4	80.3	.....	115.5	149.1	12.3
Connersville.....	8,188	138	16.8	122.1	24.4	.....	36.6	.....	24.4	48.8	73.2	.....	.....	48.4	24.4	122.1	122.1	16.7
Whiting.....	7,887	118	14.9	101.5	25.3	70.0	.....	12.6	12.6	50.7	101.5	507.2	12.6	12.6	12.6	12.6	164.8	.....
Clinton.....	7,884	115	14.5	152.2	.....	25.3	25.3	12.6	12.6	50.7	114.1	114.1	.....	12.6	12.6	76.1	177.6	15.5
Washington.....	7,854	125	15.9	178.3	12.7	50.9	.....	.....	12.7	25.4	203.7	63.6	.....	63.6	.....	114.6	114.6	.....
Valparaiso.....	7,337	83	11.3	13.6	.....	13.6	.....	.....	.....	13.6	54.5	13.6	.....	.....	13.6	81.7	163.6	11.1
Linton.....	7,321	79	10.7	95.6	.....	13.6	13.6	.....	13.6	95.6	54.6	.....	.....	68.3	13.6	27.3	81.9	10.5
Lebanon.....	6,974	95	13.6	129.0	14.3	43.0	.....	.....	.....	114.7	28.6	.....	14.3	100.4	.....	57.3	57.3	13.1
Madison.....	6,934	105	15.1	28.8	28.8	14.4	.....	14.4	.....	72.1	28.8	.....	.....	43.2	.....	115.4	86.5	14.5
Princeton.....	6,648	100	15.0	120.3	.....	15.0	30.0	.....	.....	165.5	45.1	.....	.....	45.1	.....	105.3	120.3	.....
Harford City.....	6,562	68	10.3	137.2	45.7	.....	.....	15.2	15.2	91.4	76.2	.....	.....	31.7	.....	111.0	60.9	14.7
Seymour.....	6,305	94	14.9	111.0	47.5	16.8	31.7	.....	.....	126.9	15.8	.....	.....	.....	.....	207.6	79.3	14.7
Kendallville.....	5,781	77	13.3	69.2	61.8	.....	.....	.....	.....	121.1	17.3	.....	17.3	.....	.....	207.6	51.8	12.4

TABLE No. 7—Continued.

CITIES	Population Estimated 1916	Total Deaths Reported for Year 1916 (All Causes)	Rate per 1,000 Population, including non-residents	DEATHS FROM IMPORTANT CAUSES													Rate per 1,000 Population, deaths of Non-residents excluded		
				Pulmonary Tuberculosis	Other Forms of Tuberculosis	Typhoid Fever	Diphtheria and Croup	Scarlet Fever	Measles	Whooping Cough	Lobar and Broncho Pneumonia	Diarrhea and Enteritis (Under 2 Years)	Cerebro-spinal Fever	Acute Anterior Poliomyelitis	Influenza	Puerperal Septicemia		Cancer	External Causes
Mt. Vernon.....	5,778	72	12.4	173.1	34.6	17.8			17.8	17.8	86.5	51.9				17.3	51.9	174.3	
Greensburg.....	5,610	85	15.1	142.6	17.8	17.8			56.6	17.8	178.3	56.6					113.3	56.6	
Portland.....	5,295	88	16.6	56.6		37.7					226.6	56.6			75.5		190.9	76.3	
Bluffton.....	5,237	60	11.4	22.6		19.0				19.0	22.6	19.0							
Nobleville.....	5,213	68	13.0	115.1	19.1	57.5		19.1			57.5	38.3			19.1		76.7	95.9	
Rushville.....	5,115	77	15.0	117.3	19.5	19.5			39.1		78.2	39.1			58.6		78.2	136.9	
Alexandria.....	5,096	59	11.5	157.0	19.6					19.6	78.5	19.6		20.8		19.6	98.1	117.8	
Aurora.....	4,790	71	14.8	83.5	20.8	20.8					146.1	20.8					125.3	167.0	12.4
Martinsville.....	4,774	80	16.7	83.8	41.8	41.8	20.9				167.6						41.8	125.7	
Franklin.....	4,747	49	10.3	105.3	21.5	21.5					63.2	43.0			21.5		21.5	42.1	
Warsaw.....	4,650	76	16.3	129.0	21.5		21.5				129.0	43.0			21.5	21.5	107.5	107.5	
Decatur.....	4,631	44	9.5	43.2		21.5					43.2	86.3			43.2		129.6	64.7	
Garrett.....	4,613	64	13.8	43.3			65.0		21.6	21.6	173.5	65.0		21.6	21.6	21.6	65.0	65.0	12.1
Sullivan.....	4,610	45	9.7	151.8		21.6		21.6			65.0	43.3		21.6	21.6	21.6	43.3	21.6	9.5
Winchester.....	4,546	65	14.3	110.0		22.0					66.0	66.0			66.0		88.0	110.0	
Greenfield.....	4,448	67	15.0	134.9	22.4					44.9	44.9	22.4			89.9		67.4	89.9	
Boonville.....	4,404	65	14.7	181.7	90.8						90.8	113.5			45.4	68.1	68.1	22.7	
Mitchell.....	4,268	50	11.7	70.2	23.4						93.7	23.4	23.4		70.2	23.4	46.8	117.2	
Tipton.....	4,230	50	12.1	47.2		47.2				47.2	94.5	23.6			47.2		118.2	23.6	
Auburn.....	4,179	51	12.2	73.2	47.8	23.9			47.8		73.2	23.9			95.7		47.8	23.9	11.9
Lawrenceburg.....	3,930	60	15.2	101.8	25.4		25.4				127.2	50.8			50.8		127.2	101.8	
Plymouth.....	3,928	46	11.7	76.3	50.9						50.9	25.9					152.8	50.9	
Greencastle.....	3,850	34	8.8	77.9		25.9					129.9	25.9			25.9		103.9	25.9	
Tell City.....	3,709	29	7.8	134.8							26.9	80.8					26.9	80.8	
Columbia City.....	3,683	45	12.2	162.0			27.1				81.4	108.6					102.9	27.1	



Attica	3,500	61	17.4	142.9	28.5	399.9	28.5	85.7	142.9	114.3	.....
Union City	3,449	42	12.1	88.9	57.9	86.9	88.9	.....	157.9	86.9	.....
Rochester	3,364	78	23.1	88.1	59.4	58.4	89.1	21.7	356.7	118.9	.....
Jacobsville	3,310	39	12.0	120.9	30.2	60.4	181.3	.....	60.4	90.6	.....
Gas City	3,224	41	12.7	92.9	28.9	28.9	124.1	28.9	92.9	92.9	.....
Dunkirk	3,031	22	7.2	32.9	.....	32.9	138.9	32.9	96.9	66.9	.....
North Vernon	2,960	37	12.6	101.3	33.7	202.7	33.7	33.7	33.7	33.7	12.1
Angola	2,940	40	14.0	70.4	.....	35.2	.....	106.6	35.2	140.9	.....
Richmond	2,809	76	27.0	249.2	35.6	71.1	208.7	142.4	142.4	142.4	26.5
Montpelier	2,786	47	16.8	171.1	35.8	35.8	143.9	35.8	179.5	107.7	.....
Rockport	2,736	60	21.9	328.9	73.1	106.7	146.3	36.5	36.5	106.7	.....
Crown Point	2,621	56	21.3	114.4	114.4	190.7	76.3	76.3	152.6	343.3	.....
Logansport	2,539	30	11.8	118.1	78.7	78.7	39.3	79.0	118.1	118.1	.....
Batesville	2,631	34	13.4	196.0	.....	39.5	39.5	40.6	158.0	158.0	.....
Huntingburg	2,464	39	15.8	324.7	40.6	40.6	121.8	40.6	121.8	40.6	.....
Remus	2,458	37	15.0	122.0	40.6	40.6	40.6	40.6	81.3	40.6	14.6
Jasper	2,400	32	13.5	83.3	125.0	41.6	41.6	41.6	83.3	125.0	12.9
Monticello	2,190	41	18.7	137.0	45.6	45.6	223.3	45.6	45.6	182.7	.....
Ligonier	2,173	37	17.0	92.0	.....	138.0	.....	46.0	92.0	46.0	.....
Delphi	2,171	28	12.9	46.0	.....	46.0	46.0	46.0	46.0	184.3	.....
Cannelton	2,130	47	22.0	140.9	93.9	93.9	187.8	46.9	93.9	140.9	.....
Covington	2,069	31	14.9	96.7	.....	96.7	.....	193.3	48.3	48.3	.....
Butler	1,818	33	18.1	55.0	55.0	220.0	.....	165.0	110.0	.....	.....
Veedsburg	1,812	20	11.0	264.4	66.1	55.1	165.5	66.1	55.1	132.2	10.4
Rising Sun	1,513	35	23.1	79.5	.....	330.5	.....	79.5	330.5	132.2	.....
Versy	1,256	15	11.9	79.5	.....	.....	.....	79.5	79.5	79.5	.....

TABLE No. 8.

*Mortality in Indiana for the Calendar Year Ending December 31, 1916, by Geographical Sections, Urban and Rural. Important Ages. Important Causes and Death Rate per 100,000 Estimated Population.*

POPULATION BY GEOGRAPHICAL SEC- TIONS AND AS URBAN AND RURAL	Total Deaths Reported for Year 1916 (All Causes)	Population Estimated 1916	Rate per 1,000 Population Including Non- Residents	IMPORTANT AGES											
				Under 1		1 to 4		5 to 9		10 to 14		15 to 19		65 and over	
				No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.	No.	Per Cent.
State.....	38,249	2,860,920	13.3	5,418	14.1	2,065	5.4	717	1.8	594	1.5	975	2.5	13,434	35.1
Northern Counties.....	13,330	998,000	13.3	2,187	16.4	750	5.6	241	1.8	179	1.3	281	2.1	4,672	35.0
Central Counties.....	16,376	1,178,368	13.9	2,060	12.5	824	5.0	317	1.9	263	1.6	416	2.5	5,702	34.8
Southern Counties.....	8,543	684,552	12.4	1,171	13.7	491	5.7	159	1.8	152	1.7	278	3.2	3,060	35.8
All Cities.....	19,412	1,308,540	14.8	2,940	15.1	1,122	5.7	371	1.9	284	1.4	508	2.6	5,429	27.9
Over 100,000.....	4,278	265,890	16.0	472	11.0	224	6.4	93	2.1	61	1.4	117	2.7	1,052	24.5
45,000 to 100,000.....	3,873	282,282	13.7	575	14.8	230	5.9	74	1.9	62	1.6	106	2.7	964	24.6
20,000 to 45,000.....	4,904	304,643	16.1	1,014	20.6	318	6.4	98	1.9	73	1.4	128	2.6	1,155	23.5
10,000 to 20,000.....	2,081	152,429	13.6	294	14.1	131	6.2	37	1.7	45	2.1	54	2.5	690	33.1
Under 10,000.....	4,276	303,296	14.1	585	13.7	209	4.8	69	1.6	43	1.0	103	2.4	1,578	36.9
Country.....	18,837	1,552,380	12.1	2,478	13.1	943	5.0	346	1.8	310	1.6	467	2.4	8,005	42.5

TABLE No. 8—Continued.

POPULATION BY GEOGRAPHICAL SECTIONS AND AS URBAN AND RURAL		DEATHS AND ANNUAL DEATH RATES, PER 100,000 POPULATION, FROM IMPORTANT CAUSES															
		Pulmonary Tuberculosis		Other Forms Tuberculosis		Typhoid Fever		Diphtheria and Croup		Scarlet Fever		Measles		Whooping Cough		Lobar and Bronco Pneumonia	
		No.	Death Rate	No.	Death Rate	No.	Death Rate	No.	Death Rate	No.	Death Rate	No.	Death Rate	No.	Death Rate	No.	Death Rate
State.....		3,259	113.9	564	19.7	604	21.1	386	13.5	96	3.3	204	7.1	252	8.8	3,297	115.0
Northern Counties.....		839	84.0	164	16.4	190	19.0	112	11.2	31	3.1	103	10.3	58	5.8	1,151	115.3
Central Counties.....		1,461	124.0	276	23.4	280	22.0	156	13.2	51	4.3	87	7.3	132	11.2	1,391	118.1
Southern Counties.....		959	140.1	124	18.1	154	22.4	118	17.2	14	2.0	14	2.0	62	9.0	755	110.3
All Cities.....		1,563	119.5	317	24.2	324	24.8	197	15.0	37	2.8	100	7.6	119	9.0	1,663	127.1
Over 100,000.....		378	114.2	79	29.7	63	23.7	55	20.6	10	3.7	24	9.0	22	8.2	350	131.7
45,000 to 100,000.....		368	130.4	57	20.2	66	23.3	55	19.4	8	2.8	14	4.9	21	7.4	381	135.0
20,000 to 45,000.....		337	110.6	86	28.2	107	36.9	39	12.8	6	1.9	21	6.8	27	8.8	460	151.0
10,000 to 20,000.....		152	99.7	35	22.9	27	17.7	19	12.4	9	5.9	18	11.8	18	11.8	151	99.0
Under 10,000.....		328	108.2	60	19.7	61	20.1	29	9.5	4	1.3	23	7.5	31	10.2	321	105.9
Country.....		1,696	109.1	247	15.9	280	18.0	189	12.1	59	3.7	104	6.7	133	8.5	1,634	106.3



[illegible]









Occupation	Males	Females	Total	Per cent of total
Wood carvers	2	1	3	1.1
Other skilled occupations	1	1	2	0.7
Stone cutters	1	1	2	0.7
Structural iron workers (building)	2	3	5	1.8
Tailors and tailresses	1	4	5	1.8
Coppersmiths	1	1	2	0.7
Timemiths	2	2	4	1.4
Upholsterers	2	1	3	1.1
TRANSPORTATION—				
Boatmen, canal men and lock keepers	1	1	2	0.7
Captains, masters, mates and pilots	1	1	2	0.7
Sailors and deck hands	2	4	6	2.1
ROAD AND STREET TRANSPORTATION (selected occupations)—				
Carrriage and hack drivers	1	2	3	1.1
Chauffeurs	4	1	5	1.8
Draymen, teamsters and expressmen	4	7	11	3.9
Foremen of livery and transfer companies	1	1	2	0.7
Garage keepers and managers	1	1	2	0.7
Hostlers and stable hands	1	1	2	0.7
Livery stable keepers and managers	1	1	2	0.7
Proprietors and managers of transfer companies	1	1	2	0.7
RAILROAD TRANSPORTATION (selected occupations)				
BAGGAGEMEN AND FREIGHT AGENTS—				
Baggagemen	2	1	3	1.1







	Males	Females	Total	Per cent of total	Ratio of males to females
<b>INSURANCE AGENTS AND OFFICIALS—</b>					
Insurance agents.....	1		1	100	1
Officials of insurance companies.....					
<b>LABORERS IN COAL AND LUMBERYARD, WARE- HOUSES, ETC.—</b>					
Elevators.....			1	100	1
Lumberyards.....					
Males.....					
Females.....					
Laborers, porters and helpers in stores.....	1	1	2	50	1
Newsboys.....	1		1	100	1
<b>PROPRIETORS, OFFICIALS AND MANAGERS (N. O. S. *)</b>					
Employment office keepers.....	1		1	100	1
Other proprietors, officials and managers.....					
Real estate agents and officials.....					
Retail dealers.....	10	13	23	43	1.1
Salesmen and saleswomen—					
Auctioneers.....			1	100	1
Demonstrators.....			1	100	1
Sales agents.....			1	100	1
Salesmen and saleswomen (stores).....	9	14	23	43	1.1
Undertakers.....	4	8	12	33	1.3
Wholesale dealers, importers and exporters.....			1	100	1
<b>OTHER PURSUITS (SEMI-SKILLED)—</b>					
Meat cutters.....	2	1	3	67	1.3
Other occupations.....					



Policemen.....	Males.....	2	1	4	8	4	1	.....
Soldiers, sailors and marines.....	Females.....	.....	.....	.....	.....	.....	.....	.....
	Males.....	3	2	.....	1	.....	.....	1
	Females.....	.....	.....	.....	.....	.....	.....	.....
PROFESSIONAL SERVICE—								
Actors.....	Males.....	.....	.....	1	1	.....	.....	.....
Architects.....	Females.....	.....	1	.....	.....	.....	.....	.....
	Males.....	.....	.....	1	.....	1	2	.....
Artists, sculptors and teachers of art.....	Females.....	.....	.....	.....	.....	.....	.....	.....
	Males.....	.....	.....	.....	.....	1	.....	.....
	Females.....	.....	.....	1	.....	.....	.....	.....
AUTHORS, EDITORS AND REPORTERS—								
Authors.....	Males.....	.....	.....	.....	.....	.....	2	.....
Editors and reporters.....	Females.....	.....	2	4	1	4	2	4
	Males.....	.....	.....	.....	.....	1	.....	.....
Chemists, assayers and metallurgists.....	Females.....	1	.....	.....	.....	1	1	.....
	Males.....	1	.....	.....	.....	.....	.....	.....
CIVIL AND MINING ENGINEERS AND SURVEYORS—								
Civil engineers and surveyors.....	Males.....	1	.....	2	2	4	1	4
Mining engineers.....	Females.....	.....	.....	.....	.....	.....	.....	.....
	Males.....	.....	.....	.....	.....	.....	.....	.....
Clergymen.....	Females.....	.....	.....	.....	.....	.....	.....	.....
College presidents and professors.....	Males.....	3	2	5	7	17	26	12
	Females.....	.....	.....	1	.....	1	1	5
Dentists.....	Males.....	.....	.....	.....	.....	.....	.....	.....
	Females.....	1	1	3	1	5	4	1
DESIGNERS, DRAFTSMEN AND INVENTORS—								
Designers.....	Males.....	.....	.....	.....	.....	.....	.....	.....
	Females.....	.....	.....	.....	1	.....	.....	.....
Draftsmen.....	Males.....	2	1	.....	3	.....	.....	.....
	Females.....	.....	.....	.....	.....	.....	.....	.....
Inventors.....	Males.....	.....	.....	.....	.....	.....	1	.....
	Females.....	.....	.....	.....	.....	.....	.....	.....
Lawyers, judges and justices.....	Males.....	1	1	2	1	6	13	18
	Females.....	.....	.....	.....	.....	.....	12	1
Musicians and teachers of music.....	Males.....	1	2	3	2	1	1	3
	Females.....	.....	1	4	2	.....	.....	1







TABLE No. 10—Continued

OCCUPATION	SEX	AGES											
		14-18	19-23	24-28	29-33	34-43	44-53	54-63	64-73	74-83	84 +	Un- known	
SERVANTS— Bell boys, chore boys, etc. Chambermaids Cooks Other servants Waiters	Males	1											
	Females												
	Males						1						
	Females						3	6	4				
	Males		3		2	9	2	7	4		1		
	Females		2		2	2	2	3	4				
	Males	1	1	1	2	4	2	1	3	2			
	Females	19	36	20	21	47	41	41	34	12	5		
	Males	2	2	1	3	5	3		2				
	Females		1	3									
	OTHER PURSUITS— Bathhouse keepers and attendants Cemetery keepers Cleaners and renovators (clothing, etc.) Umbrella menders and scissors grinders Other occupations	Males				1	1						
		Females											
Males								1	2	1			
Females													
Males		1			1								
Females													
Males							2	2					
Females													
Males									1				
Females													
CLERICAL OCCUPATIONS— AGENTS, CANYASSERS AND COLLECTORS— Agents Canyassers Collectors Bookkeepers, cashiers and accountants		Males	1	1		1	2	5	4	4			
		Females							1	1			
	Males						1	1	1	2			
	Females			1			2	2	1				
	Males			1		1	1						
	Females			1									
	Males	1	7	9	12	15	10	13	11	2			
	Females	3	7	9	2	7	1	1	1				







TABLE No. 10—Continued.

OCCUPATION	SEX	DISEASES																
		Typhoid Fever	Tuberculosis of Lungs	Cancer	Rheumatism	Diabetes	Alcoholism	Lead Poisoning	Other Occupational Poisonings	Apoplexy and Paralysis	Other Diseases Nervous System	Heart Disease	Other Diseases Circulatory System	Bronchitis	Pneumonia, all Forms	Pleurisy	Asthma	Other Diseases Respiratory System
Coal mine operators.....	Males..... Females.....	5	20	8	1	4	1	1		16	6	24	1		16		3	1
OPERATIVES IN OTHER AND NOT SPECIFIED MINES—																		
Lead and zinc mine operatives.....	Males..... Females.....			1														
All other mine operatives.....	Males..... Females.....	2																
Quarry operatives.....	Males..... Females.....											2			1			
Oil and gas well operatives.....	Males..... Females.....		2															
MANUFACTURING AND MECHANICAL INDUSTRIES—																		
Apprentices (N. O. S. *).....	Males..... Females.....	1																
Rakers.....	Males..... Females.....	1	8			1	1	1		9	1	8			1		1	
BLACKSMITHS, FORGEWOMEN AND HAMMERMEN—																		
Blacksmiths.....	Males..... Females.....	2	9	8	1	1	1	1		23	2	19	1	2	12		1	
Forgemen, hammermen and welders.....	Males..... Females.....	1																
Boiler makers.....	Males..... Females.....	2	6	1								1			2			







































TABLE No. 10—Continued.

OCCUPATION	SEX	DISEASES												
		Typhoid Fever	Tuberculosis of Lungs	Cancer	Rheumatism	Diabetes	Alcoholism	Lead Poisoning	Other Occupational and Chronic Poisonings	Apoplexy and Paralysis	Other Diseases Nervous System	Heart Disease	Other Diseases Circulatory System	Bronchitis
Tinsmiths.....	Males.....	5	3							1		6	1	
	Females.....													
Upholsterers.....	Males.....				1							1		
	Females.....													
TRANSPORTATION—														
Boatmen, canal men and lock keepers.....	Males.....											1		
	Females.....													
Captains, masters, mates and pilots.....	Males.....									2				1
	Females.....													
Sailors and deck hands.....	Males.....	1								1		1		1
	Females.....													
ROAD AND STREET TRANSPORTATION (selected occupations)—	Males.....									1		1	1	
	Females.....													
Carriage and hack drivers.....	Males.....	1	3											
	Females.....													
Chauffeurs.....	Males.....													
	Females.....													
Drymen, teamsters and expressmen.....	Males.....	1	16	3		1	1			12	2	22	2	6
	Females.....													1
Foremen of livery and transfer companies.....	Males.....						1							
	Females.....													
Garage keepers and managers.....	Males.....					1						1		
	Females.....													
Hortlers and stable hands.....	Males.....	1	4		1							3		
	Females.....													
Pneumonia, all forms.....	Males.....													
	Females.....													
Asthma.....	Males.....													
	Females.....													
Pleurisy.....	Males.....													
	Females.....													
Other Diseases Respiratory System.....	Males.....													
	Females.....													









TABLE No. 10—Continued.

OCCUPATION	SEX	DISEASES																
		Typhoid Fever	Tuberculosis of Lungs	Cancer	Rheumatism	Diabetes	Alcoholism	Lead Poisoning	Other Occupational and Chronic Poisonings	Apoplexy and Paralysis	Other Diseases Nervous System	Heart Disease	Other Diseases Circulatory System	Bronchitis	Pneumonia, all Forms	Pleurisy	Asthma	Other Diseases Respiratory System
INSURANCE AGENTS AND OFFICIALS— Insurance agents.	Males	3	4			2				4	1	11	2		5	1		
	Females									1								
Officials of insurance companies.	Males																	
	Females																	
LABORERS IN COAL AND LUMBERTYARD, WARE- HOUSES, ETC.— Elevators.	Males						1											
	Females																	
Lumberyards.	Males								1				1					
	Females																	
Laborers, porters and helpers in stores.	Males	1	1												4			
	Females																	
Newboys.	Males																	
	Females																	
PROPRIETORS, OFFICIALS AND MANAGERS (N. O. S. *)																		
Employment office keepers.	Males																	
	Females	1																
Other proprietors, officials and managers.	Males																	
	Females																	
Real estate agents and officials.	Males	2	3			1				6	4	7	5		1			
	Females																	
Retail dealers.	Males	7	32	43	1	12	5			65	8	109	9	5	37	2	1	2
	Females			1								1						













TABLE No. 10—Continued.

OCCUPATION	SEX	DISEASES																
		Typhoid Fever	Tuberculosis of Lungs	Cancer	Rheumatism	Diabetes	Alcoholism	Lead Poisoning	Other Occupational and Chronic Poisonings	Apoplexy and Paralysis	Other Diseases Nervous System	Heart Disease	Other Diseases Circulatory System	Bronchitis	Pneumonia, all Forms	Pleurisy	Asthma	Other Diseases Respiratory System
OTHER PURSUITS— Bathhouse keepers and attendants. Cemetery keepers. Cleaners and renovators (clothing, etc.) Umbrella menders and scissors grinders. Other occupations.	Males																	
	Females																	
	Males																	
	Females																	
	Males																	
	Females																	
	Males																	
	Females																	
	Males																	
	Females																	
CLERICAL OCCUPATIONS— AGENTS, CANVASSERS AND COLLECTORS— Agents. Canvassers. Collectors. Bookkeepers, cashiers and accountants.	Males	1	1			1				1	4				2			
	Females																	
	Males																	
	Females																	
	Males		1															
	Females																	
	Males	3	17	1			1			7	14	1			6			
	Females	1	10	2		1					1	1						
	Males																	
	Females																	
CLERKS (except clerks in stores)— Shipping clerks. Other clerks.	Males			2					1	1	1			3				
	Females																	
	Males	1	19	3		1			8	1	11	2		12				
	Females	1	4	3										1				









	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Males.	Females.	Total.
Brick and stone masons.....	1		1		1		1		1		1		1		1		1		71
Builders and building contractors..	1	1	1	1	2	9	5	8	7	96									96
Butchers and dressers (slaughterhouse).				1		2	1		1	9									9
Cabinet makers.			1		1	4	1	2	5	35									35
Carpenters.	6	1	1	3	3	11	35	43	43	396	6	402							402
Compositors, linotypers and typesetters.	1		2		1	2	1	3	3	41		41							41
Coopers.....						4		2	1	23		23							23
Dressmakers and seamstresses (not in factory)..																			
Dyers.....	1		1		1	3	1	1	5	63	2	65							65
Electricians and electrical engineers.	1				1	1	2	14	1	42		42							42
Lithographers.....							1			1		1							2
Engineers (mechanical).....						1													1
Engineers (stationary).....	1	1			2	7	1	7	6	71	1	72							72
OVERSEERS, CARTDRIVERS, SUFFRERS AND POLISHERS (ARTIF.) Buffers and polishers.....										1	4		4						4
Fileps.....							1			2		2							2
Grinders.....							1			8		8							8
Firemen (except locomotive and fire department)..			1			1	1	5	3	19	2	21							21
Furnace men and overseers (manufacturing).....	1		2	1	2	2		5		33	2	35							36
FURNACE MEN, SMELTERS MEN, REBATORS, POURERS, ETC.— Furnace men and smelter men.									1	1									1
Heaters.....			1							6		6							6
Ladlers and pourers.....										1		1							1

TABLE No. 10—Continued.

OCCUPATION	SEX	DISEASES											TOTAL					
		Cirrhosis of Liver	Other Diseases of Liver	Peritonitis	Appendicitis	Hernia	Other Diseases Digestive System	Bright's Disease	Childbirth	Suicide	Poisonous Gases and Other Accidental Poisonings	Other Accidents and Injuries	All Other Causes	White	Colored	Male	Female	Total All Causes
Coal mine operators.....	Males..... Females.....	2			4	2	4	14		10		93	17	250	2	252		252
OPERATIVES IN OTHER AND NOT SPECIFIED MINES—																		
Lead and zinc mine operatives.....	Males..... Females.....													1		1		1
All other mine operatives.....	Males..... Females.....											2		4		4		4
Quarry operatives.....	Males..... Females.....		1								2			6		6		6
Oil and gas well operatives.....	Males..... Females.....										1			3		3		3
MANUFACTURING AND MECHANICAL IN- DUSTRIES—																		
Apprentices (N. O. & S.).....	Males..... Females.....										2			3		3		3
Bakers.....	Males..... Females.....		1			1		2			5	2	41	1	42	42		42
BLACKSMITHS, FORGEMEN AND HAMMERMEN—																		
Blacksmiths.....	Males..... Females.....	3	2				5	16		2		5	17	131	1	132		132
Forgemen, hammermen and welders.....	Males..... Females.....												2	3		3		3
Boiler makers.....	Males..... Females.....	2						1				8	1	24		24		24



[illegible]

TABLE No. 10—Continued.

OCCUPATION	SEX	DISEASES											TOTAL					
		Cirrhosis of Liver	Other Diseases of Liver	Peritonitis	Appendicitis	Hernia	Other Diseases of Digestive System	Bright's Disease	Childbirth	Suicide	Poisonous Gases and Other Accidental Poisonings	Other Accidents and Injuries	All Other Causes	White	Colored	Male	Female	Total All Causes
Puddlers.....	Males.....											2		5		5		5
	Females.....																	
Glass blowers.....	Males.....	2						2		1			2	19		19		19
	Females.....																	
JEWELERS, WATCHMAKERS, GOLDSMITHS AND SILVERSMITHS—	Males.....													1		1		1
Goldsmiths and silversmiths.....	Females.....													3		3		3
Jewelers and lapidaries (factory).....	Males.....	2												3		3		3
	Females.....						1	1						3		3		3
Jewelers and watchmakers (not in factory).....	Males.....																	
	Females.....																	
LABORERS (N. O. S. *)—	Males.....	28	8	3	9	1	38	129		49	9	217	180	1,547	166	1,713		1,713
General and not specified laborers.....	Females.....																	
Helpers in building and hand trades.....	Males.....	1					1					4	5	21	3	24		24
	Females.....																	
CHEMICAL INDUSTRIES—	Males.....				1			1										
Chemical factories, (N. O. S. *).....	Females.....											4		12		12		12
CLAY, GLASS AND STONE INDUSTRIES—	Males.....				2					1				19	3	22		22
Brick, tile and terra-cotta factories.....	Females.....																	
	Males.....													16		16		16
Glass factories.....	Females.....											3						





















TABLE No. 10—Continued.

OCCUPATION	SEX	DISEASES											TOTAL					
		Cirrhosis of Liver	Other Diseases of Liver	Peritonitis	Appendicitis	Hernia	Other Diseases of Digestive System	Bright's Disease	Childbirth	Suicide	Poisonous Gases and Other Accidental Poisonings	Other Accidents and Injuries	All Other Causes	White	Colored	Male	Female	Total All Causes
Express, post, telegraph and telephone agents— (express companies), . . . . .	Males . . . . .												1	1			1	1
	Females . . . . .																	
EXPRESS MESSENGERS AND RAILWAY MAIL CLERKS— Express messenger . . . . .	Males . . . . .													2	2			2
	Females . . . . .												2	1	15	15		15
Railway mail clerks . . . . .	Males . . . . .									1								
	Females . . . . .																	
Mail carrier . . . . .	Males . . . . .						4	2		2		3	1	25	1	26		26
	Females . . . . .																	
Telegraph and telephone linemen . . . . .	Males . . . . .							1				6		12		12		12
	Females . . . . .																	
Telegraph operators . . . . .	Males . . . . .			1			1	1		2		4	2	24		24		27
	Females . . . . .												2	3	3	3	3	11
Telephone operators . . . . .	Males . . . . .			1									1	3	3	3	3	11
	Females . . . . .												2	8		8		8
OTHER TRANSPORTATION PURSUITS, FOREMEN AND OVERSEERS (N. O. & F.)— Road and street building and repairing . . . . .	Males . . . . .										1			1		1		1
	Females . . . . .																	
Telegraph and telephone companies . . . . .	Males . . . . .													2	2			2
	Females . . . . .																	
INSPECTORS— Steam railroads . . . . .	Males . . . . .							1		1		1		8		8		8
	Females . . . . .																	



TABLE No. 10—Continued.

OCCUPATION	SEX	DISEASES										TOTAL						
		Cirrhosis of Liver	Other Diseases of Liver	Peritonitis	Appendicitis	Hernia	Other Diseases Digestive System	Bright's Disease	Childbirth	Suicide	Poisonous (Gases and Other Accidental Poisonings)	Other Accidents and Injuries	All Other Causes	White	Colored	Male	Female	Total All Causes
INSURANCE AGENTS AND OFFICIALS— Insurance agents.....	Males.....	4					1	4		5		5	3	55		55		55
	Females.....																	
Officials of insurance companies.....	Males.....						1							2		2		2
	Females.....																	
LABORERS IN COAL AND LUMBERYARD, WARE- HOUSES, ETC.— Elevators.....	Males.....													1		1		1
	Females.....																	
Lumberyards.....	Males.....							1						2	1	3		3
	Females.....																	
Laborers, porters and helpers in stores.....	Males.....	1					2	1			3		1	13	1	14		14
	Females.....																	
Newsboys.....	Males.....												1	2		2		2
	Females.....																	
PROPRIETORS, OFFICIALS AND MANAGERS (N. O. S. *) Employment office keepers.....	Males.....									1				1		1		1
	Females.....																	
Other proprietors, officials and managers.....	Males.....													1		1		1
	Females.....																	
Real estate agents and officials.....	Males.....	2			2		2	8		1		1	3	48		48		48
	Females.....																	
Retail dealers.....	Males.....	11	5	1	11	1	17	67	1	18		33	42	532	12	544		548
	Females.....												1	4			4	

[illegible]

TABLE No. 10—Continued.

OCCUPATION	SEX	DISEASES											TOTAL					
		Cirrhosis of Liver	Other Diseases of Liver	Peritonitis	Appendicitis	Hernia	Other Diseases of Digestive System	Bright's Disease	Childbirth	Suicide	Poisonous Gases and Other Accidental Poisonings	Other Accidents and Injuries	All Other Causes	White &	Colored	Male	Female	Total All Causes
Officials and inspectors (county).  OFFICIALS AND INSPECTORS (State and United States). Officials and inspectors (state). Officials and inspectors (United States).	Males.....	1					2				2			7		7		7
	Females.....																	
	Males.....													4		4		4
	Females.....						1	1				2	3	9		9		9
Police men.  Soldiers, sailors and marines.	Males.....			1		1	2		1		5		20		20		20	
	Females.....												7		7		7	
	Males.....																	
	Females.....																	
PROFESSIONAL SERVICE—  Actors.  Architects.  Artists, sculptors and teachers of art.	Males.....							1				1	1	2		2		3
	Females.....																1	
	Males.....										1		1	4		4		4
	Females.....																	
AUTHORS, EDITORS AND REPORTERS— Authors.  Editors and reporters.	Males.....																	
	Females.....																	
	Males.....																	
	Females.....																	
		1						2			1		17		17	2	18	1



Profession	Males	Females	Total	Per cent of total	Ratio of males to females
<b>Chemists, assayers and metallurgists.</b>					
Civil and mining engineers and surveyors—					
Civil engineers and surveyors.	1		1	100	1
Mining engineers.					
Males.					
Females.					
Clergymen.	1		1	100	1
College presidents and professors.					
Males.					
Females.					
Dentists.	1		1	100	1
<b>DESIGNERS, DRAFTSMEN AND INVENTORS—</b>					
Designers.					
Males.					
Females.					
Draftsmen.	1		1	100	1
Inventors.					
Males.					
Females.					
Lawyers, judges and justices.					
Males.					
Females.					
Musicians and teachers of music.	1		1	100	1
Photographers.					
Males.					
Females.					
Physicians and surgeons.	2	5	7	28.6	1.75
Males.					
Females.					
Showmen.		2	2	100	1
<b>TEACHERS—</b>					
Teachers (school).	1	1	2	50	1
Males.					
Females.					
Trained nurses.					
Males.					
Females.					
Veterinary surgeons.	1		1	100	1
Males.					
Females.					
Other professional pursuits.		1	1	100	1
Males.					
Females.					
<b>SEMI-PROFESSIONAL PURSUITS—</b>					
Abstractors, notaries and justices of peace.	1		1	100	1
Males.					
Females.					





TABLE No. 10—Continued.

OCCUPATION	SEX	DISEASES											TOTAL					
		Cirrhosis of Liver	Other Diseases of Liver	Peritonitis	Appendicitis	Hernia	Other Diseases Digestive System	Bright's Disease	Childbirth	Suicide	Poisonous Gases and Other Accidental Poisonings	Other Accidents and Injuries	All Other Causes	White	Colored	Male	Female	Total All Causes
OTHER PURSUITS—																		
Bathhouse keepers and attendants . . . . .	Males														2	2		2
	Females																	
Cemetery keepers . . . . .	Males													4		4		4
	Females																	
Cleaners and renovators (clothing, &c.) . . . . .	Males													2	2	2		2
	Females																	
Umbrella menders and scissors grinders . . . . .	Males						1					2		4	4	4		4
	Females																	
Other occupations . . . . .	Males						1							1	1	1		1
	Females																	
CLERICAL OCCUPATIONS—																		
AGENTS, CANVASSERS AND COLLECTORS—																		
Agents . . . . .	Males	1		2				4				1	1	18		18	2	20
	Females													2				
Canvassers . . . . .	Males			1				2		2				5		5	4	9
	Females											1		4				
Collectors . . . . .	Males		1											3		3		4
	Females													1		1		
Bookkeepers, cashiers and accountants . . . . .	Males			4			3	5		4		2	12	80		80	30	110
	Females		1	1			1	1	1	3	1	1	4	26	4			
CLERKS (except clerks in stores) —																		
Shipping clerks . . . . .	Males			3				1				2	3	14		14		14
	Females																	
Other clerks . . . . .	Males	1	1				3	8		3	2	5	8	92		92		107
	Females												6	14	1		15	



TABLE No. 11.

*Number of Deaths of Males and Females (All Causes) 14 Years of Age and Over Engaged in Occupation. Number of Deaths from Pulmonary Tuberculosis with Percentage of Deaths for the Calendar Year 1916.*

OCCUPATIONS.	No. of Deaths All causes 14 Years of age and over, occupations reported.	No. of Deaths from Pulmonary Tuberculosis.	Percentage of Deaths from Pulmonary Tuberculosis.
<b>MALES.</b>			
<b>AGRICULTURE, FORESTRY AND ANIMAL HUSBANDRY.</b>			
Dairy Farmers.....	1	1	100.0
Farmers.....	3,966	326	8.2
<b>FARM LABORERS.</b>			
Farm Laborers (Home Farm).....	90	19	21.1
Farm Laborers (Working Out).....	309	33	10.6
Fishermen and Oystermen.....	6	1	16.6
Gardeners.....	32	1	3.1
Lumbermen and Raftmen.....	12	2	16.6
Corn Shellers, Hay Balers, Grain Threshers, etc.....	2	1	50.0
<b>EXTRACTION OF MINERALS.</b>			
Foremen and Overseers.....	7	2	28.5
Coal Mine Operatives.....	252	20	7.9
Oil and Gas Well Operatives.....	3	2	16.6
Bakers.....	42	8	19.0
Blacksmiths.....	132	9	6.8
Boilermakers.....	24	6	25.0
Brick and Stone Masons.....	71	10	14.0
Builders and Building Contractors.....	96	2	2.0
Butchers and Dressers (Slaughter House).....	9	2	22.2
Cabinet Makers.....	35	3	8.5
Carpenters.....	402	36	8.9
Compositors, Linotypers and Typesetters.....	41	8	19.5
Coopers.....	23	1	4.3
Electricians and Electrical Engineers.....	42	13	30.9
Engineers (Mechanical).....	7	2	28.5
Engineers (Stationary).....	72	11	15.2
Grinders (Metal).....	8	3	37.5
Firemen (Except Locomotive and Fire Department).....	21	1	4.7
Foremen and Overseers (Manufacturing).....	36	7	19.4
Glass Blowers.....	19	3	15.7
Goldsmiths and Silversmiths.....	1	1	100.0
Jewelers and Watchmakers (Not in Factory).....	3	1	33.3
<b>LABORERS.</b>			
General and not Specified Laborers.....	1,713	287	16.7
Helpers in Building and Hand Trades.....	24	4	16.6
<b>CHEMICAL INDUSTRIES (Factory).....</b>			
	12	1	8.3
<b>CLAY, GLASS AND STONE INDUSTRIES.</b>			
Brick, Tile, and Terra-Cotta Factories.....	22	4	18.1
Glass Factories.....	16	4	25.0
Lime, Cement, and Gypsum Factories.....	10	2	20.0
Marble and Stone Yards.....	4	1	25.0
Potteries.....	3	1	33.3

TABLE No. 11—Continued.

OCCUPATIONS.	No. of Deaths All causes 14 Years of age and over occu- pations reported.	No. of Deaths from Pulmon- ary Tub- erculosis.	Percentage of Deaths from Pulmon- ary Tub- erculosis
<b>IRON AND STEEL INDUSTRIES.</b>			
Automobile Factories.....	11	2	18.1
Blast Furnaces and Rolling Mills.....	93	10	10.7
Car and Railroad Shops.....	24	2	8.3
Other Iron and Steel Works.....	75	12	16.0
<b>LUMBER AND FURNITURE INDUSTRIES.</b>			
Furniture, Piano and Organ Factories.....	14	3	21.4
Saw and Planing Mills.....	11	5	45.4
Other Woodworking Factories.....	4	2	49.9
Slaughter and Packing House.....	5	2	39.9
Liquor and Beverage Industries.....	5	3	59.9
Oil Refineries.....	6	1	16.6
Rubber Factories.....	2	1	50.0
Other Factories.....	41	8	19.5
Machinists and Millwrights.....	203	38	18.7
Managers and Superintendents (Manufacturing).....	27	1	3.7
Manufacturers.....	53	1	1.8
Officials.....	6	2	33.3
<b>MECHANICS (Not Otherwise Specified).</b>			
Wheelwrights.....	5	1	20.0
Other Mechanics.....	36	4	11.1
Millers, (Grain, Feed, Flour).....	22	1	4.5
<b>MOLDERS, FOUNDERS AND CASTER (Metal).</b>			
Brass Molders, Founders and Casters.....	4	1	25.0
Iron Molders, Founders and Casters.....	46	8	17.3
<b>PAINTERS, GLAZIERS, VARNISHERS, ENAMELERS, ETC.</b>			
Painters, Glaziers and Varnishers (Building).....	167	27	16.1
Painters, Glaziers and Varnishers (Factory).....	6	1	16.6
Paper Hangers.....	17	4	23.5
Pattern and Model Makers.....	7	1	14.2
Plasterers.....	39	1	2.5
Plumbers Gas and Steam Fitters.....	39	9	23.0
Roofers and Slaters.....	3	1	33.3
Sawyers.....	8	1	12.5
<b>SEMI-SKILLED OPERATIVES (Not Otherwise Specified).</b>			
Cigar and Tobacco Factories.....	28	5	17.8
<b>CLAY, GLASS AND STONE INDUSTRIES (Semi-skilled).</b>			
Brick, Tile and Terra-cotta Factories.....	7	1	14.2
Glass Factories.....	14	3	21.4
Potteries.....	6	1	16.6
Clothing Industries (Factories).....	1	1	100.0
Slaughter and Packing Houses.....	5	1	20.0
Harness and Saddle Industries.....	26	1	3.8
<b>IRON AND STEEL INDUSTRIES.</b>			
Automobile Factories.....	19	7	36.8
Blast Furnaces and Rolling Mills.....	23	3	13.0
Car and Railroad Shops.....	33	5	15.1
Wagon and Carriage Factories.....	18	1	5.5
Other Iron and Steel Works.....	38	6	15.7
Other Metal Industries (Brass Mills).....	2	1	50.0
Breweries with Liquor and Beverage Industries.....	10	3	30.0

TABLE No. 12.  
*Table of Cases of Diseases Reported by Counties.*

COUNTIES	Typhoid Fever	Smallpox	Measles	Scarlet Fever	Whooping Cough	Diphtheria	Pulmonary Tuber- culosis	Cerebrospinal Fever	Polio-myelitis	Chicken Pox	Traehoma	Syphilis	Gonorrhoea	Parotitis	Krysipelas	Mumps
Adams.....	17	44	267	4	..	24	1	..	3	15	..	..	..	..	..	..
Allen.....	70	15	1,501	104	17	55	84	..	8	110	..	..	..	..	..	..
Bartholomew.....	11	3	27	30	14	2	13	..	..	2	1	..	..	..	..	..
Benton.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Blackford.....	8	..	6	19	4	1	2	..	..	6	..	..	..	..	..	..
Boone.....	9	33	83	16	..	10	1	..	1	..	..	..	..	..	..	..
Brown.....	16	..	74	19	116	15	7	..	..	..	..	2	..	..	..	..
Carroll.....	4	2	177	1	..	2	1	..	3	..	..	..	..	..	..	..
Cass.....	12	1	114	16	8	13	8	..	2	12	..	1	..	..	..	..
Clark.....	6	5	2	27	4	23	13	..	2	..	..	..	..	..	..	..
Clay.....	23	2	181	37	2	12	10	..	1	66	..	..	..	..	..	..
Clinton.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Crawford.....	10	..	46	18	..	16	3	..	2	..	..	..	..	..	..	..
Davies.....	23	..	161	5	2	18	8	..	3	3	..	..	..	..	..	..
Dearborn.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Deatur.....	7	..	19	3	7	1	1	..	1	2	..	..	..	..	..	..
DeKalb.....	19	11	484	21	4	44	3	..	8	19	2	..	..	..	..	..
Delaware.....	74	9	1,174	63	77	37	7	..	3	167	..	..	..	..	..	..
Dubois.....	14	..	3	4	..	12	6	..	2	7	..	..	..	..	..	..
Elkhart.....	19	1	500	83	1	23	29	11	..	21	..	..	..	..	..	..
Fayette.....	1	..	774	15	..	69	..	..	..	..	..	..	..	..	..	..
Floyd.....	72	1	6	19	18	42	38	..	..	..	..	..	..	..	..	..
Fountain.....	14	29	280	27	5	5	2	..	2	..	..	..	..	..	..	..
Franklin.....	3	..	203	2	..	3	..	..	1	..	..	..	..	..	..	..
Fulton.....	1	..	414	75	18	..	24	..	1	55	..	1	15	..	..	..







TABLE No. 13.

*Infant Mortality. Deaths of Infants, by Days, Weeks and Months. Deaths (Exclusive of Stillbirths) from Important Causes for the State of Indiana of the First Year of Life in 1917.*

CAUSE OF DEATH	MONTHS												AGE, UNDER 1 YEAR, IN COMPLETED DAYS, WEEKS OR MONTHS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
													DAYS				WEEKS				MONTHS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
													1		2		3		Total under 1 Week		1		2		3*		Total under 1 Month		1		2		3 to 6		Total under 1 Year																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Under 1	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
All Causes.....	483	451	497	493	391	315	480	575	506	444	370	410	1,048	312	234	361	1,955	341	274	195	2,765	463	347	807	576	460	5,418																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
Menses.....	2	5	9	8	3	6	2	.....	.....	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	....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TABLE No. 13—Continued.

CAUSE OF DEATH	MONTHS												AGE, UNDER 1 YEAR, IN COMPLETED DAYS, WEEKS OR MONTHS																	
													DAYS						WEEKS						MONTHS					
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Under 1	1	2	3 to 6	Total under 1 Week	1	2	3*	Total under 1 Month	1	2	3	4 to 6	7	8	9	Total under 1 Year	
Malformations.....	40	55	54	52	43	35	51	44	31	52	36	47	157	75	62	70	364	51	31	18	464	28	11	19	12	6		540		
Premature Births.....	120	122	121	111	97	88	87	111	88	94	102	117	688	150	79	112	1,029	98	63	27	1,217	26	7	6	1	1		1,289		
Congenital Debility.....														34	35	36	193	35	24	20	272	20	10	18	7	2		329		
Injuries at Birth.....	21	21	19	16	13	13	16	13	15	12	8	17	78	22	23	32	155	17	5	3	186	3					1	184		
External causes.....	9	4	3	4	8	4	6	9	3	4	7	5	5	2	1	5	13	6	2	3	24	9	8	9	9	7		66		
Ill-defined and unknown.....	1	2	1	1			1			1			2	1		1	4	1	1	6								7		
All other causes.....	33	26	28	30	23	15	14	25	14	22	26	21	8	7	11	21	47	29	26	13	115	38	18	43	37	26		277		

\*Includes Infants aged 21 to 29 days.

TABLE No. 14.

*Infant Mortality. Deaths of Infants, by Days, Weeks and Months for each County and City of 5,000 and over, Estimated Population in 1917. Deaths (Exclusive of Stillbirths).*

	MONTHS												AGE, UNDER 1 YEAR, IN COMPLETED DAYS, WEEKS OR MONTHS														
	MONTHS												DAYS				WEEKS				MONTHS						
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Under 1	1	2	3 to 6	Total under 1 Week	1	2	3*	Total under 1 Month	1	2	3 to 5	6 to 8	9 to 11	Total under 1 Year
Adams County.....	3	2	4	4	3	2	1	1	5	1	1	4	7	1	1	5	13	1	2	1	17	5	2	4	1	2	31
Allen County.....	6	7	4	6	3	2	2	4	1	4	2	5	10	3	1	7	21	3	5	3	32	3	1	5	2	3	46
Ft. Wayne—City.....	7	9	7	10	12	7	8	13	12	14	11	7	28	10	8	4	50	10	5	3	68	11	9	8	11	10	117
Bartholomew County.....	3	2	2	1	1	2	1	2	2	1	1	1	1	3	1	1	6	1	3	2	7	1	1	1	1	1	14
Columbus—City.....	3	2	2	1	2	1	1	1	1	1	1	1	1	4	1	1	6	1	3	2	12	1	1	1	1	1	14
Benton County.....	4	3	2	1	1	1	1	3	1	2	2	1	2	1	1	1	6	4	1	1	11	1	1	2	1	1	16
Blackford County.....	5	1	1	1	1	1	1	3	1	2	2	1	2	1	1	3	7	1	1	1	8	2	1	3	1	1	15
Hartford City—City.....	1	4	2	1	1	1	1	1	1	4	2	1	1	1	2	1	5	1	1	1	11	5	2	1	3	3	13
Boone County.....	3	1	1	1	1	1	1	1	1	2	2	1	2	1	2	6	10	1	1	1	11	1	1	1	2	2	17
Lebanon—City.....	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	4	1	1	1	1	2	8
Brown County.....	2	4	4	4	3	2	3	1	1	1	1	1	10	2	1	1	2	1	2	1	5	3	1	4	1	1	9
Carroll County.....	1	3	3	3	2	2	2	3	3	3	4	3	4	2	1	4	17	2	1	1	20	3	1	3	4	5	36
Cass County.....	1	3	3	3	1	1	1	1	1	1	1	1	4	1	1	1	6	1	1	1	10	2	2	2	3	1	18
Leansport—City.....	2	6	5	5	3	3	2	3	4	4	1	1	5	2	4	5	17	1	4	4	25	2	2	5	3	2	39
Clark County.....	2	3	1	1	2	2	2	3	5	1	1	4	5	2	2	1	10	1	1	1	14	1	1	1	1	4	28
Jeffersonville—City.....	2	3	3	3	1	1	3	1	2	2	2	1	3	3	1	1	6	1	1	1	7	3	3	1	1	1	16
Clay County.....	3	4	3	3	2	4	3	2	1	2	1	1	3	2	2	1	9	1	2	1	12	3	2	6	2	3	28
Bay County.....	2	3	3	3	2	3	2	4	2	2	1	1	3	3	3	1	9	3	1	1	7	3	1	3	4	5	23
Ball—City.....	2	3	3	3	2	3	1	3	1	1	3	4	8	1	1	1	11	2	2	3	7	4	2	1	1	2	16
Clinton County.....	2	1	1	2	1	2	4	3	4	1	3	1	8	1	1	1	11	1	1	2	17	4	1	2	3	3	30
Dearborn County.....	2	2	1	2	1	2	1	3	1	1	1	1	1	1	1	1	11	1	1	2	17	4	1	2	3	3	30

TABLE No. 14—Continued.

MONTHS												AGE, UNDER 1 YEAR, IN COMPLETED DAYS, WEEKS OR MONTHS														
												DAYS			WEEKS			MONTHS								
												Total under 1 Week			1 2 3*			Total under 1 Month								
Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Under 1	1	2	3 to 6	Total under 1 Week	1	2	3*	Total under 1 Month	1	2	3 to 5	6 to 8	9 to 11	Total under 1 Year
Deatur County.....	2	1	5	1	2	1	2	2	4	2	3	9	1	1	1	12	2	2	2	16	2	5	2	1	1	26
Frankfort—City.....	2	1	3	1	1	1	3	3	4	1	4	4	2	2	1	9	2	2	2	11	1	1	2	3	1	18
Crawford County.....	1	1	1	1	1	1	1	1	1	1	3	2	3	4	1	22	4	1	1	7	7	1	2	2	1	15
Davies County.....	4	5	5	2	2	2	2	7	4	2	3	13	3	1	5	22	1	1	1	13	2	3	4	2	4	41
Washington City.....	5	1	1	3	2	1	1	1	1	1	1	3	1	2	6	6	1	1	7	7	2	4	2	4	2	21
Greensburg—City.....	1	1	1	2	2	4	1	1	4	3	1	1	1	1	3	10	1	1	1	3	3	1	8	3	1	6
DeKalb County.....	2	1	4	2	2	1	1	1	1	3	3	7	20	9	5	34	6	3	2	44	5	5	6	4	9	69
Delaware County.....	6	9	4	5	6	2	5	9	9	1	4	3	3	3	3	17	3	2	1	24	4	5	6	4	9	53
Muncie—City.....	3	2	2	2	2	2	9	5	7	8	4	11	8	2	3	15	2	1	3	21	3	1	8	3	2	38
Dubois County.....	2	6	4	4	4	2	7	3	6	1	1	12	3	1	3	19	1	2	2	22	1	1	2	3	7	36
Elkhart County.....	5	4	5	4	2	3	6	3	4	2	3	4	1	5	4	14	1	1	2	18	4	1	1	5	4	39
Elkhart—City.....	4	2	4	2	3	2	1	1	1	1	2	6	1	2	2	11	1	1	1	11	1	3	3	4	1	19
Goshen—City.....	2	4	4	2	3	2	1	1	1	1	1	1	1	2	1	9	2	1	1	12	2	2	4	5	1	24
Fayette County.....	1	1	1	3	4	2	3	3	1	1	1	5	1	1	1	2	2	1	1	4	4	1	3	1	1	10
Connerville—City.....	1	1	4	3	4	2	3	3	3	3	3	1	1	2	1	9	1	1	1	12	2	2	4	5	1	24
Floyd County.....	1	1	1	3	3	3	1	1	1	3	4	1	6	2	2	2	10	4	1	17	2	3	3	3	1	10
New Albany—City.....	5	1	1	3	3	1	1	1	1	3	4	6	2	2	1	10	4	1	2	17	4	2	3	3	3	32
Fountain County.....	4	1	2	3	1	1	1	7	3	2	1	7	1	1	1	10	1	2	1	14	3	3	3	4	1	29
Franklin County.....	4	1	2	1	9	2	1	3	4	1	1	1	4	4	1	9	4	4	1	19	2	2	3	3	4	17
Fulton County.....	4	2	1	1	9	2	1	2	2	4	2	5	3	1	1	9	8	2	2	19	1	2	5	2	2	29
Gibson County.....	5	3	1	1	3	2	4	3	3	3	2	12	1	1	4	17	4	1	1	22	3	4	1	2	3	35
Princeton—City.....	2	1	1	1	2	2	2	4	5	6	2	13	2	4	1	20	1	1	1	5	3	3	6	5	5	8
Grant County.....	2	4	6	2	3	4	3	4	5	6	2	13	2	4	1	20	1	1	1	22	3	3	6	5	6	44
Marion—City.....	1	1	7	3	1	2	10	5	2	2	7	16	4	2	3	32	4	2	1	19	2	6	4	6	2	39
Greene County.....	4	4	1	4	2	6	2	3	3	1	1	16	2	3	1	20	8	2	4	34	6	4	4	6	2	56
Linton—City.....	1	1	1	1	2	3	4	1	1	1	2	4	1	1	2	5	2	2	1	7	2	5	2	1	4	16
Hamilton County.....	1	2	4	3	1	4	2	5	3	1	3	7	1	2	3	13	3	1	1	17	4	2	2	3	1	32

Noblesville—City	1	2	4	1	3	1	1	1	1	2	1	1	1	7	1	8	1	2	11	2
Hancock County	2	3	3	3	2	3	2	3	2	2	1	2	4	13	2	15	4	1	26	3
Harrison County																				
Heard County	2	2	5	2	3	1	2	1	2	2	3	2	3	4	6	7	3	4	23	3
Henry County	2	2	3	3	1	2	3	11	1	3	4	4	2	17	3	22	2	2	31	3
New Castle—City	2	2	1	6	2	1	6	4	4	2	1	3	4	15	4	22	3	6	30	3
Howard County	1	4	3	4	1	2	3	7	6	1	1	2	3	16	4	22	3	5	43	3
Kokomo—City	2	7	5	3	1	4	6	8	1	1	5	2	2	13	7	24	4	1	43	3
Huntington County																				
Huntington—City	1	5	1	2	2	1	4	2	3	2	2	2	1	7	1	10	2	4	26	3
Jackson County	6	6	4	2	3	1	3	5	1	1	6	3	3	17	1	21	3	2	22	3
Seymour—City	2	1	1	1	1	1	1	1	1	1	1	1	1	6	6	9	2	1	33	3
Jasper County	1	3	6	1	1	2	3	2	1	2	3	2	1	8	1	14	3	1	11	3
Jay County	4	3	4	4	2	3	3	4	1	3	6	1	2	13	3	19	1	3	38	3
Portland—City																				
Jefferson County	2	1	1	3	2	1	3	2	1	1	1	1	1	4	2	7	1	4	13	3
Madison—City	1	1	2	1	1	1	1	1	1	1	2	2	1	5	2	5	1	1	18	3
Jennings County																				
Johnson County	5	5	3	4	4	1	4	1	1	2	6	1	2	10	1	14	2	2	21	3
Knox County	4	5	2	6	5	2	3	2	3	2	7	1	2	18	3	22	4	1	44	3
Vincennes—City	1	1	4	2	4	1	8	7	4	3	11	2	3	3	5	1	2	6	70	3
Kosciusko County	3	2	4	6	2	2	4	5	2	3	6	1	4	11	2	15	3	4	38	3
Lagrange County	3	4	3	4	2	2	2	3	1	1	10	1	3	4	2	18	2	2	31	3
Lake County	5	2	4	3	1	2	2	2	4	2	9	1	2	16	1	21	2	1	27	3
Gray—City	10	16	25	13	7	40	35	25	18	8	20	2	13	41	11	67	9	44	215	3
Hammond—City	16	13	10	12	7	19	13	3	17	10	14	2	8	29	7	45	11	24	120	3
East Chicago—City	28	22	23	18	14	29	21	16	11	19	23	3	6	39	11	74	27	54	240	3
Whiting—City	6	6	7	6	3	6	5	6	3	1	2	2	1	5	1	12	4	12	56	3
Laporte County	1	3	1	5	1	2	1	1	2	4	2	3	1	5	1	8	2	1	15	3
Laporte—City	5	3	3	5	1	1	3	8	4	2	5	1	5	14	3	23	2	10	62	3
Laporte—City	1	1	3	2	1	1	3	4	2	4	4	1	4	5	2	10	1	5	21	3
Leland County	2	1	3	2	1	1	2	5	1	2	4	2	2	15	2	20	2	5	24	3
Bellevue—City																				
Madison County	6	4	1	1	6	2	3	7	4	4	3	2	2	12	5	23	3	6	43	3
Anderson—City	8	3	6	4	3	12	6	7	1	5	4	1	5	22	6	30	7	16	60	3
Elwood—City	6	6	2		2	4	2	1	5	2	7	1	4	12	6	12	2	6	24	3
Alexandria—City																				
Marion County	2	5	4	4	1	8	3	2	5	1	3	8	1	13	6	27	4	1	9	3
Indianapolis	35	55	39	30	40	44	45	28	31	38	94	39	19	188	22	24	18	21	486	3
Marshall County	3	3	2	1	5	6	5	4	2	10	8	4	1	17	3	26	1	6	47	3
Marion County	3	4	1	1	3	3	3	1	3	1	8	1	1	11	1	15	4	1	25	3
Miami County	2	1	1	2	2	1	3	2	1	2	3	1	3	5	1	8	1	2	21	3
Peru—City	2	1	1	2	2	1	4	3	3	1	2	4	1	5	1	7	1	3	11	3







TABLE No. 14A.

*Births, Deaths Under 1 Year, by Counties, Infant Mortality Rate per 1,000 for the Year 1916.*

COUNTIES.	Births	Deaths Under 1 year.	Infant Mortality rate per 1,000.	COUNTIES.	Births.	Deaths under 1 year.	Infant Mortality rate per 1,000.
Adams.....	552	31	56.1	Lawrence.....	840	59	70.2
Allen.....	2,274	163	71.6	Madison.....	1,445	145	100.3
Bartholomew.....	513	24	46.7	Marion.....	6,181	531	85.9
Benton.....	271	16	59.0	Marshall.....	562	47	83.6
Blackford.....	430	28	65.1	Martin.....	298	25	83.8
Boone.....	481	25	51.9	Miami.....	625	32	51.1
Brown.....	153	9	58.8	Monroe.....	657	46	70.0
Carroll.....	335	36	107.5	Montgomery.....	595	44	73.9
Cass.....	789	57	72.2	Morgan.....	435	30	68.3
Clark.....	492	44	89.4	Newton.....	254	18	70.8
Clay.....	602	51	84.7	Noble.....	502	30	59.7
Clinton.....	557	34	61.0	Ohio.....	73	4	54.8
Crawford.....	250	15	60.0	Orange.....	412	19	46.1
Davies.....	663	62	93.5	Owen.....	259	18	69.5
Dearborn.....	395	30	75.9	Parke.....	404	33	81.6
Decatur.....	370	32	86.4	Perry.....	457	28	61.2
Dekalb.....	567	29	51.1	Pike.....	486	44	90.5
Delaware.....	1,220	122	100.0	Porter.....	440	31	70.4
Dubois.....	520	38	73.0	Posey.....	408	31	75.9
Elkhart.....	1,209	94	77.7	Pulaski.....	287	22	76.6
Fayette.....	336	31	92.2	Putnam.....	405	23	56.7
Floyd.....	546	42	76.9	Randolph.....	560	41	73.2
Fountain.....	426	29	68.0	Ripley.....	357	34	95.2
Franklin.....	307	17	55.3	Rush.....	423	31	73.3
Fulton.....	391	29	74.1	Scott.....	183	20	109.3
Gibson.....	698	43	61.6	Shelby.....	487	43	88.3
Grant.....	1,064	83	78.0	Spencer.....	361	33	91.4
Greene.....	835	72	86.2	Starke.....	278	14	50.3
Hamilton.....	552	43	77.9	Steuben.....	244	19	77.8
Hancock.....	328	26	79.2	St. Joseph.....	2,556	268	104.8
Harrison.....	428	33	77.1	Sullivan.....	827	65	78.6
Hendricks.....	356	23	64.6	Switzerland.....	217	10	46.0
Henry.....	674	70	103.8	Tippecanoe.....	825	57	54.8
Howard.....	960	86	89.5	Tipton.....	350	35	100.0
Huntington.....	707	48	67.8	Union.....	117	9	76.9
Jackson.....	554	44	79.4	Vanderburgh.....	1,726	151	87.5
Jasper.....	322	23	71.4	Vermillion.....	610	80	131.2
Jay.....	548	51	93.0	Vigo.....	2,002	235	117.4
Jefferson.....	392	26	66.3	Wabash.....	552	32	57.9
Jennings.....	299	21	70.2	Warren.....	228	13	57.0
Johnson.....	462	44	95.2	Warrick.....	400	42	105.0
Knox.....	1,071	108	100.8	Washington.....	378	28	74.0
Kosciusko.....	598	42	70.2	Wayne.....	938	66	70.3
Lagrange.....	345	31	89.8	Wells.....	455	28	61.5
Lake.....	4,446	658	148.0	White.....	431	32	74.2
Laporte.....	1,115	88	78.9	Whitley.....	382	21	54.9
Total.....				Total.....			
				63,312			
				5,418			
				85.5			

TABLE No. 15.

*Number of Births and Rates per 1,000 Population by Counties for Year 1916.*

COUNTIES.	Number	Rate	COUNTIES.	Number	Rate
NORTHERN COUNTIES....	24,490	24.5	CENTRAL CO.—CONT.		
Adams.....	552	25.0	Madison.....	1,445	21.7
Allen.....	2,274	22.1	Marion.....	6,181	20.8
Benton.....	271	21.3	Monroe.....	657	28.6
Blackford.....	430	26.5	Montgomery.....	595	19.4
Carroll.....	335	18.6	Morgan.....	435	20.3
Cass.....	789	20.8	Owen.....	259	18.4
Dekalb.....	567	22.3	Parke.....	404	18.1
Elkhart.....	1,209	23.5	Putnam.....	405	19.6
Fulton.....	391	23.1	Randolph.....	560	18.9
Grant.....	1,064	20.2	Rush.....	423	21.6
Howard.....	960	26.4	Shelby.....	487	17.4
Huntington.....	707	24.0	Tippecanoe.....	825	20.1
Jasper.....	322	24.5	Tipton.....	350	19.8
Jay.....	548	21.8	Union.....	117	18.6
Kosciusko.....	598	21.2	Vermillion.....	610	29.5
Lagrange.....	345	22.7	Vigo.....	2,002	19.8
Lake.....	4,446	38.6	Warren.....	228	20.9
Laporte.....	1,115	22.6	Wayne.....	938	20.3
Marshall.....	562	23.1			
Miami.....	625	20.4	SOUTHERN COUNTIES..	14,565	21.2
Newton.....	254	24.1	Clark.....	492	16.2
Noble.....	502	20.2	Crawford.....	250	20.7
Porter.....	440	21.0	Daviess.....	663	23.9
Pulaski.....	287	21.5	Dearborn.....	395	18.1
Starke.....	278	20.7	Dubois.....	520	26.1
Steuben.....	244	16.8	Floyd.....	546	17.9
St. Joseph.....	2,556	26.3	Gibson.....	698	23.0
Wabash.....	552	20.4	Greene.....	835	20.3
Wells.....	455	20.0	Harrison.....	428	21.1
White.....	431	24.4	Jackson.....	554	22.4
Whitley.....	382	22.3	Jefferson.....	392	19.1
CENTRAL COUNTIES....	24,257	20.5	Jennings.....	299	21.0
Bartholomew.....	513	20.4	Knox.....	1,071	25.2
Boone.....	481	19.1	Lawrence.....	840	25.4
Brown.....	153	19.1	Martin.....	298	22.3
Clay.....	602	18.0	Ohio.....	73	16.8
Clinton.....	557	20.3	Orange.....	412	23.7
Decatur.....	370	19.4	Perry.....	457	24.8
Delaware.....	1,220	23.0	Pike.....	486	24.6
Fayette.....	336	22.5	Posey.....	408	18.6
Fountain.....	426	20.6	Ripley.....	357	16.3
Franklin.....	307	20.0	Scott.....	183	20.9
Hamilton.....	552	20.3	Spencer.....	361	17.4
Hancock.....	328	17.2	Sullivan.....	827	23.1
Hendricks.....	366	17.0	Switzerland.....	217	21.8
Henry.....	674	21.4	Vanderburgh.....	1,726	20.4
Johnson.....	462	22.3	Warrick.....	400	17.8
			Washington.....	378	21.6
State.....	63,312	22.1	Highest Rate, Lake County..	4,446	38.6
Males.....	32,421		Lowest Rate, Clark County.	492	16.2
Females.....	30,891		Urban.....	30,177	25.3
White.....	62,343		Rural.....	33,135	21.3
Colored.....	969				

**TABLE No. 16.**

*Number of Sites and Excess per 1,000 Population for Cities for  
Year 1912.*

姓名	性别	年龄	籍贯	职业	住址
王德胜	男	45	山东烟台	教师	烟台市芝罘区
李秀英	女	38	河南郑州	护士	郑州市二七区
张国强	男	52	江苏苏州	工程师	苏州市工业园区
刘小红	女	28	四川成都	会计	成都市锦江区
陈为民	男	60	广东广州	退休	广州市天河区
赵子龙	男	35	湖北武汉	程序员	武汉市洪山区
周美兰	女	42	浙江杭州	医生	杭州市西湖区
吴大伟	男	55	安徽合肥	农民	合肥市肥东县
孙丽娟	女	30	福建厦门	销售	厦门市思明区
郑金荣	男	65	广西桂林	退休	桂林市七星区
马小芳	女	25	湖南长沙	学生	长沙市岳麓区
徐建国	男	48	江西九江	工人	九江市濂溪区
黄文娟	女	33	云南昆明	教师	昆明市五华区
郭为民	男	58	陕西西安	干部	西安市雁塔区
宋小红	女	22	贵州贵阳	学生	贵阳市南明区
林大伟	男	40	海南三亚	导游	三亚市海棠区
周美兰	女	35	宁夏银川	护士	银川市金凤区
吴大伟	男	50	新疆乌鲁木齐	商人	乌鲁木齐市天山区
孙丽娟	女	28	内蒙古呼和浩特	教师	呼和浩特市赛罕区
郑金荣	男	62	吉林长春	退休	长春市朝阳区
马小芳	女	20	辽宁沈阳	学生	沈阳市和平区
徐建国	男	45	黑龙江哈尔滨	工人	哈尔滨市道里区
黄文娟	女	30	河北石家庄	教师	石家庄市桥西区
郭为民	男	55	山西太原	干部	太原市迎泽区
宋小红	女	25	山东济南	学生	济南市历下区
林大伟	男	40	河南郑州	工人	郑州市金水区
周美兰	女	35	广东广州	护士	广州市白云区
吴大伟	男	50	江苏苏州	商人	苏州市吴江区
孙丽娟	女	28	浙江杭州	教师	杭州市萧山区
郑金荣	男	62	安徽合肥	退休	合肥市庐江县
马小芳	女	20	福建厦门	学生	厦门市集美区
徐建国	男	45	广西桂林	工人	桂林市临桂区
黄文娟	女	30	湖南长沙	教师	长沙市开福区
郭为民	男	55	江西九江	干部	九江市柴桑区
宋小红	女	25	云南昆明	学生	昆明市官渡区
林大伟	男	40	陕西西安	商人	西安市未央区
周美兰	女	35	宁夏银川	护士	银川市兴庆区
吴大伟	男	50	新疆乌鲁木齐	商人	乌鲁木齐市沙依巴克区
孙丽娟	女	28	内蒙古呼和浩特	教师	呼和浩特市回民区
郑金荣	男	62	吉林长春	退休	长春市南关区
马小芳	女	20	辽宁沈阳	学生	沈阳市皇姑区
徐建国	男	45	黑龙江哈尔滨	工人	哈尔滨市香坊区
黄文娟	女	30	河北石家庄	教师	石家庄市新华区
郭为民	男	55	山西太原	干部	太原市小店区
宋小红	女	25	山东济南	学生	济南市市中区
林大伟	男	40	河南郑州	工人	郑州市中原区
周美兰	女	35	广东广州	护士	广州市荔湾区
吴大伟	男	50	江苏苏州	商人	苏州市相城区
孙丽娟	女	28	浙江杭州	教师	杭州市余杭区
郑金荣	男	62	安徽合肥	退休	合肥市长丰县
马小芳	女	20	福建厦门	学生	厦门市翔安区
徐建国	男	45	广西桂林	工人	桂林市七星区
黄文娟	女	30	湖南长沙	教师	长沙市雨花区
郭为民	男	55	江西九江	干部	九江市浔阳区
宋小红	女	25	云南昆明	学生	昆明市东川区
林大伟	男	40	陕西西安	商人	西安市阎良区
周美兰	女	35	宁夏银川	护士	银川市西夏区
吴大伟	男	50	新疆乌鲁木齐	商人	乌鲁木齐市米东区
孙丽娟	女	28	内蒙古呼和浩特	教师	呼和浩特市新城区
郑金荣	男	62	吉林长春	退休	长春市绿园区
马小芳	女	20	辽宁沈阳	学生	沈阳市铁西区
徐建国	男	45	黑龙江哈尔滨	工人	哈尔滨市松北区
黄文娟	女	30	河北石家庄	教师	石家庄市藁城区
郭为民	男	55	山西太原	干部	太原市清徐县
宋小红	女	25	山东济南	学生	济南市莱芜区
林大伟	男	40	河南郑州	工人	郑州市巩义市
周美兰	女	35	广东广州	护士	广州市增城区
吴大伟	男	50	江苏苏州	商人	苏州市常熟市
孙丽娟	女	28	浙江杭州	教师	杭州市桐庐县
郑金荣	男	62	安徽合肥	退休	合肥市舒城县
马小芳	女	20	福建厦门	学生	厦门市同安区
徐建国	男	45	广西桂林	工人	桂林市全州县
黄文娟	女	30	湖南长沙	教师	长沙市浏阳县
郭为民	男	55	江西九江	干部	九江市修水县
宋小红	女	25	云南昆明	学生	昆明市寻甸县
林大伟	男	40	陕西西安	商人	西安市蓝田县
周美兰	女	35	宁夏银川	护士	银川市永宁县
吴大伟	男	50	新疆乌鲁木齐	商人	乌鲁木齐市达坂城区
孙丽娟	女	28	内蒙古呼和浩特	教师	呼和浩特市武川县
郑金荣	男	62	吉林长春	退休	长春市双阳区
马小芳	女	20	辽宁沈阳	学生	沈阳市辽中区
徐建国	男	45	黑龙江哈尔滨	工人	哈尔滨市宾州镇
黄文娟	女	30	河北石家庄	教师	石家庄市井陉县
郭为民	男	55	山西太原	干部	太原市阳曲县
宋小红	女	25	山东济南	学生	济南市商河县
林大伟	男	40	河南郑州	工人	郑州市新郑市
周美兰	女	35	广东广州	护士	广州市从化市
吴大伟	男	50	江苏苏州	商人	苏州市太仓市
孙丽娟	女	28	浙江杭州	教师	杭州市临安市
郑金荣	男	62	安徽合肥	退休	合肥市无为县
马小芳	女	20	福建厦门	学生	厦门市海沧区
徐建国	男	45	广西桂林	工人	桂林市龙胜县
黄文娟	女	30	湖南长沙	教师	长沙市宁乡县
郭为民	男	55	江西九江	干部	九江市彭泽县
宋小红	女	25	云南昆明	学生	昆明市石林县
林大伟	男	40	陕西西安	商人	西安市周至县
周美兰	女	35	宁夏银川	护士	银川市灵武市
吴大伟	男	50	新疆乌鲁木齐	商人	乌鲁木齐市玛纳斯县
孙丽娟	女	28	内蒙古呼和浩特	教师	呼和浩特市托克托县
郑金荣	男	62	吉林长春	退休	长春市九台区
马小芳	女	20	辽宁沈阳	学生	沈阳市新民市
徐建国	男	45	黑龙江哈尔滨	工人	哈尔滨市方正县
黄文娟	女	30	河北石家庄	教师	石家庄市平山县
郭为民	男	55	山西太原	干部	太原市娄烦县
宋小红	女	25	山东济南	学生	济南市章丘区
林大伟	男	40	河南郑州	工人	郑州市新密市
周美兰	女	35	广东广州	护士	广州市花都区
吴大伟	男	50	江苏苏州	商人	苏州市常熟市
孙丽娟	女	28	浙江杭州	教师	杭州市桐庐县
郑金荣	男	62	安徽合肥	退休	合肥市舒城县
马小芳	女	20	福建厦门	学生	厦门市翔安区
徐建国	男	45	广西桂林	工人	桂林市临桂区
黄文娟	女	30	湖南长沙	教师	长沙市浏阳县
郭为民	男	55	江西九江	干部	九江市修水县
宋小红	女	25	云南昆明	学生	昆明市寻甸县
林大伟	男	40	陕西西安	商人	西安市蓝田县
周美兰	女	35	宁夏银川	护士	银川市永宁县
吴大伟	男	50	新疆乌鲁木齐	商人	乌鲁木齐市达坂城区
孙丽娟	女	28	内蒙古呼和浩特	教师	呼和浩特市武川县
郑金荣	男	62	吉林长春	退休	长春市双阳区
马小芳	女	20	辽宁沈阳	学生	沈阳市辽中区
徐建国	男	45	黑龙江哈尔滨	工人	哈尔滨市宾州镇
黄文娟	女	30	河北石家庄	教师	石家庄市井陉县
郭为民	男	55	山西太原	干部	太原市阳曲县
宋小红	女	25	山东济南	学生	济南市商河县
林大伟	男	40	河南郑州	工人	郑州市新郑市
周美兰	女	35	广东广州	护士	广州市从化市
吴大伟	男	50	江苏苏州	商人	苏州市太仓市
孙丽娟	女	28	浙江杭州	教师	杭州市临安市
郑金荣	男	62	安徽合肥	退休	合肥市无为县
马小芳	女	20	福建厦门	学生	厦门市海沧区
徐建国	男	45	广西桂林	工人	桂林市龙胜县
黄文娟	女	30	湖南长沙	教师	长沙市宁乡县
郭为民	男	55	江西九江	干部	九江市彭泽县
宋小红	女	25	云南昆明	学生	昆明市石林县
林大伟	男	40	陕西西安	商人	西安市周至县
周美兰	女	35	宁夏银川	护士	银川市灵武市
吴大伟	男	50	新疆乌鲁木齐	商人	乌鲁木齐市玛纳斯县
孙丽娟	女	28	内蒙古呼和浩特	教师	呼和浩特市托克托县
郑金荣	男	62	吉林长春	退休	长春市九台区
马小芳	女	20	辽宁沈阳	学生	沈阳市新民市
徐建国	男	45	黑龙江哈尔滨	工人	哈尔滨市方正县
黄文娟	女	30	河北石家庄	教师	石家庄市平山县
郭为民	男	55	山西太原	干部	太原市娄烦县
宋小红	女	25	山东济南	学生	济南市章丘区
林大伟	男	40	河南郑州	工人	郑州市新密市
周美兰	女	35	广东广州	护士	广州市花都区
吴大伟	男	50	江苏苏州	商人	苏州市常熟市
孙丽娟	女	28	浙江杭州	教师	杭州市桐庐县
郑金荣	男	62	安徽合肥	退休	合肥市舒城县
马小芳	女	20	福建厦门	学生	厦门市翔安区
徐建国	男	45	广西桂林	工人	桂林市临桂区
黄文娟	女	30	湖南长沙	教师	长沙市浏阳县
郭为民	男	55	江西九江	干部	九江市修水县
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林大伟	男	40	陕西西安	商人	西安市周至县
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吴大伟	男	50	新疆乌鲁木齐	商人	乌鲁木齐市达坂城区
孙丽娟	女	28	内蒙古呼和浩特	教师	呼和浩特市武川县
郑金荣	男	62	吉林长春	退休	长春市九台区
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黄文娟	女	30	河北石家庄	教师	石家庄市平山县
郭为民	男	55	山西太原	干部	太原市娄烦县
宋小红	女	25	山东济南	学生	济南市章丘区
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郑金荣	男	62	安徽合肥	退休	合肥市舒城县
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徐建国	男	45	广西桂林	工人	桂林市临桂区
黄文娟	女	30	湖南长沙	教师	长沙市浏阳县
郭为民	男	55	江西九江	干部	九江市修水县
宋小红	女	25	云南昆明	学生	昆明市石林县
林大伟	男	40	陕西西安	商人	西安市周至县
周美兰	女	35	宁夏银川	护士	银川市灵武市
吴大伟	男	50	新疆乌鲁木齐	商人	乌鲁木齐市达坂城区
孙丽娟	女	28	内蒙古呼和浩特	教师	呼和浩特市武川县
郑金荣	男	62	吉林长春	退休	长春市九台区
马小芳	女	20	辽宁沈阳	学生	沈阳市新民市
徐建国	男	45	黑龙江哈尔滨	工人	哈尔滨市方正县
黄文娟	女	30	河北石家庄	教师	石家庄市平山县
郭为民	男	55	山西太原	干部	太原市娄烦县
宋小红	女	25	山东济南	学生	济南市章丘区
林大伟	男	40	河南郑州	工人	郑州市新密市
周美兰	女	35	广东广州	护士	广州市花都区
吴大伟	男	50	江苏苏州	商人	苏州市常熟市
孙丽娟	女	28	浙江杭州	教师	杭州市桐庐县
郑金荣	男	62	安徽合肥	退休	合肥市舒城县
马小芳	女	20	福建厦门	学生	厦门市翔安区
徐建国	男	45	广西桂林	工人	桂林市临桂区
黄文娟	女	30	湖南长沙	教师	长沙市浏阳县
郭为民	男	55	江西九江	干部	九江市修水县
宋小红	女	25	云南昆明	学生	昆明市石林县
林大伟	男	40	陕西西安	商人	西安市周至县
周美兰	女	35	宁夏银川	护士	银川市灵武市
吴大伟	男	50	新疆乌鲁木齐	商人	乌鲁木齐市达坂城区
孙丽娟	女	28	内蒙古呼和浩特	教师	呼和浩特市武川县
郑金荣	男	62	吉林长春	退休	长春市九台区
马小芳	女	20	辽宁沈阳	学生	沈阳市新民市
徐建国	男	45	黑龙江哈尔滨	工人	哈尔滨市方正县
黄文娟	女	30	河北石家庄	教师	石家庄市平山县
郭为民	男	55	山西太原	干部	太原市娄烦县
宋小红	女	25	山东济南	学生	济南市章丘区
林大伟	男	40	河南郑州	工人	郑州市新密市
周美兰	女	35	广东广州	护士	广州市花都区
吴大伟	男	50	江苏苏州	商人	苏州市常熟市
孙丽娟	女	28	浙江杭州	教师	杭州市桐庐县
郑金荣	男	62	安徽合肥	退休	合肥市舒城县
马小芳	女	20	福建厦门	学生	厦门市翔安区
徐建国	男	45	广西桂林	工人	桂林市临桂区
黄文娟	女	30	湖南长沙	教师	长沙市浏阳县
郭为民	男	55	江西九江	干部	九江市修水县
宋小红	女	25	云南昆明	学生	昆明市石林县
林大伟	男	40	陕西西安	商人	西安市周至县
周美兰	女	35	宁夏银川	护士	银川市灵武市
吴大伟	男	50	新疆乌鲁木齐	商人	乌鲁木齐市达坂城区
孙丽娟	女	28	内蒙古呼和浩特	教师	呼和浩特市武川县
郑金荣	男	62	吉林长春	退休	长春市九台区
马小芳	女	20	辽宁沈阳	学生	沈阳市新民市
徐建国	男	45	黑龙江哈尔滨	工人	哈尔滨市方正县
黄文娟	女	30	河北石家庄	教师	石家庄市平山县
郭为民	男	55	山西太原	干部	太原市娄烦县
宋小红	女	25	山东济南	学生	济南市章丘区
林大伟	男	40	河南郑州	工人	郑州市新密市
周美兰	女	35	广东广州	护士	广州市花都区
吴大伟	男	50	江苏苏州	商人	苏州市常熟市
孙丽娟	女	28	浙江杭州	教师	杭州市桐庐县
郑金荣	男	62	安徽合肥	退休	合肥市舒城县
马小芳	女	20	福建厦门	学生	厦门市翔安区
徐建国	男	45	广西桂林	工人	桂林市临桂区
黄文娟	女	30	湖南长沙	教师	长沙市浏阳县
郭为民	男	55	江西九江	干部	九江市修水县
宋小红	女	25	云南昆明	学生	昆明市石林县
林大伟	男	40	陕西西安	商人	西安市周至县
周美兰	女	35	宁夏银川	护士	银川市灵武市
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孙丽娟	女	28	内蒙古呼和浩特	教师	呼和浩特市武川县
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孙丽娟	女	28	内蒙古呼和浩特	教师	呼和浩特市武川县
郑金荣	男	62	吉林长春	退休	长春市九台区
马小芳	女	20	辽宁沈阳	学生	沈阳市新民市
徐建国	男	45	黑龙江哈尔滨	工人	哈尔滨市方正县
黄文娟	女	30	河北石家庄	教师	石家庄市平山县
郭为民	男	55	山西太原	干部	太原市娄烦县
宋小红	女	25	山东济南	学生	济南市章丘区
林大伟	男	40	河南郑州	工人	郑州市新密市
周美兰	女	35	广东广州	护士	广州市花都区
吴大伟	男				



TABLE No. 16.

*Number of Births and Rates per 1,000 Population for Cities for Year 1916.*

CITIES.	Number	Rate.	CITIES.	Number.	Rate.
Indianapolis.....	5,560	20.9	Portland.....	127	23.9
Evansville.....	1,418	18.25	Bluffton.....	86	16.4
Fort Wayne.....	1,559	21.5	Noblesville.....	120	22.9
Terre Haute.....	1,247	18.1	Rushville.....	123	24.0
South Bend.....	1,785	28.0	Alexandria.....	91	17.8
Gary.....	1,431	42.3	Aurora.....	85	17.7
E. Chicago.....	1,196	44.4	Martinsville.....	112	23.4
Muncie.....	608	23.8	Franklin.....	78	16.4
Hammond.....	859	34.1	Warsaw.....	91	19.5
Richmond.....	459	18.8	Decatur.....	115	24.8
Anderson.....	563	23.8	Garrett.....	110	23.8
Elkhart.....	473	22.1	Sullivan.....	63	14.3
Michigan City.....	455	21.5	Winchester.....	81	17.8
Lafayette.....	402	19.0	Greenfield.....	71	15.9
New Albany.....	403	19.5	Boonville.....	95	21.5
Logansport.....	455	22.2	Mitchell.....	92	21.5
Marion.....	502	24.6	Tipton.....	98	23.1
Kokomo.....	607	30.0	Auburn.....	93	22.2
Vincennes.....	362	21.0	Lawrenceburg.....	83	21.1
Mishawaka.....	337	22.4	Plymouth.....	86	21.8
Peru.....	225	17.3	Greencastle.....	63	16.3
Laporte.....	364	29.6	Tell City.....	95	25.6
Newcastle.....	330	29.3	Columbia City.....	75	20.3
Elwood.....	257	23.3	Attica.....	79	22.5
Crawfordsville.....	199	18.5	Union City.....	56	16.2
Shelbyville.....	156	14.6	Rochester.....	81	24.0
Huntington.....	306	28.7	Jasonville.....	110	33.2
Jeffersonville.....	148	14.2	Gas City.....	64	19.8
Brasil.....	180	17.8	Dunkirk.....	56	18.4
Bloomington.....	287	28.6	North Vernon.....	68	22.9
Bedford.....	263	26.2	Angola.....	35	12.3
Frankfort.....	198	21.0	Bicknell.....	164	58.3
Columbus.....	194	21.1	Montpelier.....	57	20.4
Goshen.....	201	22.6	Rockport.....	51	18.6
Wabash.....	188	21.5	Crown Point.....	65	24.7
Connersville.....	206	25.1	Loogootee.....	62	24.4
Whiting.....	372	47.1	Batesville.....	64	25.2
Clinton.....	226	28.6	Huntingburg.....	66	26.7
Washington.....	202	25.7	Rensselaer.....	47	19.1
Valparaiso.....	124	16.9	Jasper.....	72	30.0
Linton.....	124	16.9	Monticello.....	58	26.4
Lebanon.....	117	16.7	Ligonier.....	27	12.4
Madison.....	125	18.0	Delphi.....	32	14.7
Princeton.....	181	28.5	Cannelton.....	42	19.7
Hartford Cit.....	216	32.9	Covington.....	26	12.5
Sevmour.....	188	20.8	Butler.....	25	13.7
Kendallville.....	116	20.0	Veedersburg.....	35	19.3
Mt. Vernon.....	98	16.9	Rising Sun.....	21	13.8
Greensburg.....	91	16.2	Vevay.....	21	16.7
			Total all Cities.....	30,177	23.0



TABLE No. 17—Continued.

COUNTIES	1916												GROUPED AGES OF PARENTS										Not Reported			
													Under 20		20 to 30		30 to 40		40 to 50		50 to 60		60 to 70		70 to 80	
	January	February	March	April	May	June	July	August	September	October	November	December	Fathers	Mothers	Fathers	Mothers	Fathers	Mothers	Fathers	Mothers	Fathers	Mothers	Fathers	Mothers	Fathers	Mothers
Franklin.....	21	17	25	37	27	22	28	18	25	23	36	28	1	16	106	154	133	110	48	23	14	.....	.....	.....	.....	.....
Fulton.....	34	23	40	27	39	23	30	41	36	34	29	35	11	38	177	207	137	124	54	19	6	.....	2	.....	.....	.....
Gibson.....	62	59	70	48	55	53	58	53	71	63	55	51	6	74	340	388	234	196	87	32	14	.....	2	1	7	1
Grant.....	93	95	95	92	73	91	91	95	91	86	83	78	27	157	535	592	351	272	121	34	17	.....	1	.....	3	.....
Greene.....	86	71	74	84	70	63	50	77	62	66	58	74	13	125	372	425	287	220	47	22	.....	2	1	9	2	
Hamilton.....	51	46	45	62	45	45	37	48	45	42	52	34	8	57	273	306	187	157	63	27	13	.....	1	.....	2	.....
Hancock.....	23	33	29	24	38	28	26	25	28	20	30	24	5	35	182	197	109	94	23	10	5	.....	1	.....	1	.....
Harrison.....	50	53	38	33	31	26	38	27	48	25	31	28	9	50	167	197	143	142	84	31	11	.....	3	.....	4	1
Hendricks.....	25	30	33	25	28	34	30	46	21	29	30	25	7	32	159	198	125	109	53	14	8	.....	.....	.....	.....	.....
Henry.....	47	61	74	54	63	55	62	57	53	52	53	43	11	89	367	408	199	150	71	18	11	.....	1	1	5	1
Howard.....	74	81	77	98	92	67	92	101	76	49	67	86	19	131	487	525	311	262	121	36	12	.....	1	.....	3	.....
Huntington.....	75	59	56	63	52	58	64	67	49	49	53	62	11	62	355	416	240	201	84	18	7	.....	.....	.....	.....	.....
Jackson.....	54	56	49	50	42	32	44	46	55	49	35	42	11	64	230	295	208	159	82	30	11	.....	2	1	3	.....
Jasper.....	36	32	29	25	34	27	21	27	23	22	24	22	5	28	182	180	106	97	48	17	9	.....	1	.....	1	.....
Jay.....	51	46	60	52	52	39	34	44	46	39	43	42	13	68	263	312	166	142	74	24	7	.....	1	.....	3	1
Jefferson.....	39	39	38	31	37	32	32	29	34	29	22	30	9	50	181	212	134	103	46	24	14	.....	3	.....	1	.....
Jennings.....	18	23	34	27	24	17	27	27	31	27	18	26	2	31	126	163	103	86	49	18	11	.....	1	1	5	.....
Johnson.....	32	48	40	34	41	35	39	45	35	31	42	40	14	58	230	269	144	107	53	21	12	.....	1	.....	2	1
Knott.....	83	105	110	89	91	86	74	94	88	79	83	89	20	119	468	536	382	305	152	43	21	.....	2	1	9	2
Kosciusko.....	47	44	51	64	59	52	51	52	50	43	43	42	18	69	291	328	198	162	62	27	16	.....	1	.....	1	.....
Lagrange.....	29	33	36	20	25	33	35	35	31	25	23	20	8	23	163	210	125	94	41	13	5	.....	2	.....	1	.....
Lake.....	404	352	375	366	355	337	344	353	399	363	40	389	6	302	1,849	2,686	2,001	1,281	485	128	40	.....	1	.....	16	1
Laporte.....	87	66	125	103	85	86	104	90	88	91	95	96	3	74	480	656	478	333	129	46	15	.....	2	.....	2	.....
Lawrence.....	72	83	74	79	60	63	50	95	70	54	64	76	27	124	397	442	275	222	114	41	15	.....	1	.....	.....	.....



Madison.....	120	115	112	137	123	120	126	116	119	128	108	112	25	194	723	806	475	378	173	54	20	1	1	13	2	
Marion.....	498	534	532	513	517	464	522	522	472	497	508	570	125	780	3,573	2,167	1,858	667	176	67	176	67	4	4	54	2
Marshall.....	43	39	47	51	54	47	55	53	53	45	23	41	8	55	267	267	179	184	89	28	8	1	1	1	4	2
Martin.....	31	36	35	27	22	21	26	20	20	22	15	23	6	31	128	156	107	92	47	16	7	7	1	1	2	2
Miami.....	69	35	53	63	63	46	49	56	57	38	45	49	9	70	303	358	222	184	71	24	8	8	2	2	6	6
Monroe.....	66	49	48	73	51	50	55	50	34	40	40	53	19	75	280	327	233	180	93	31	8	31	2	2	2	2
Montgomery.....	47	54	58	50	33	53	50	56	42	46	46	58	10	62	264	327	226	173	75	23	10	10	2	2	2	2
Morgan.....	46	41	50	30	24	36	42	32	32	33	42	46	4	63	224	232	136	124	52	14	12	12	2	2	2	2
Newton.....	22	17	28	24	17	23	19	26	18	18	21	17	4	28	109	124	97	88	36	11	4	4	1	1	1	1
Noble.....	46	34	49	42	38	41	54	52	41	37	34	37	12	42	228	294	173	145	78	22	8	8	3	3	1	1
Ohio.....	7	3	8	8	6	6	7	10	7	6	4	7	1	9	29	41	31	15	9	6	6	6	1	1	1	1
Orange.....	35	34	33	40	32	42	23	39	31	41	34	28	9	67	207	224	145	105	36	9	9	9	3	3	1	1
Owen.....	13	32	28	23	25	22	20	21	18	14	22	21	7	29	101	132	102	78	41	17	3	3	1	1	1	1
Parke.....	47	29	33	19	39	36	33	32	40	22	35	39	5	43	177	213	133	119	66	20	14	14	1	1	1	2
Perry.....	35	36	52	38	45	35	38	35	34	42	37	32	3	39	178	239	180	151	77	23	11	11	1	1	4	2
Pike.....	38	57	43	30	35	39	42	43	49	38	37	32	14	72	249	262	133	112	68	31	12	12	1	1	1	1
Porter.....	34	33	40	39	44	36	42	33	29	39	39	39	4	43	185	246	171	126	63	21	10	10	1	1	1	2
Poey.....	46	42	36	22	29	31	29	30	39	31	34	39	4	39	177	226	159	117	51	20	9	9	1	1	4	3
Pulaski.....	34	22	32	20	24	31	30	23	19	17	20	25	4	28	117	153	106	74	50	28	4	4	2	2	1	1
Putnam.....	32	27	35	40	31	32	37	30	39	34	31	28	9	49	182	225	147	112	45	13	14	14	3	3	4	2
Randolph.....	56	42	38	49	41	65	40	38	51	55	49	36	17	67	267	300	187	154	74	32	5	5	1	1	4	2
Ripley.....	30	26	38	31	30	29	36	32	23	29	24	29	6	58	132	172	145	129	62	23	8	8	1	1	1	1
Rush.....	37	42	35	42	41	26	35	35	33	35	30	29	8	55	205	237	149	111	50	17	7	7	1	1	4	3
Scott.....	19	18	21	17	16	15	12	13	17	10	9	16	4	18	75	87	62	64	36	14	4	4	2	2	2	2
Shelby.....	39	44	40	39	40	44	42	46	44	38	33	38	9	49	228	289	181	127	51	17	8	8	1	1	4	4
Spencer.....	30	33	35	34	26	21	31	21	21	20	21	24	5	26	184	199	121	116	55	16	12	12	1	1	3	2
Stark.....	29	24	24	24	26	18	23	25	22	19	25	22	3	24	106	144	103	83	50	16	9	9	1	1	4	4
Steuben.....	17	18	21	18	19	18	22	19	24	18	24	26	3	18	120	134	80	94	34	7	6	6	1	1	1	1
St. Joseph.....	218	226	219	213	216	231	235	218	177	184	203	16	207	1,166	1,378	1,029	850	294	100	26	26	26	5	5	5	1
Sullivan.....	77	69	64	53	71	52	77	72	64	74	53	61	14	106	373	435	278	244	127	32	17	17	1	1	6	6
Switzerland.....	17	11	25	22	13	17	27	10	12	10	17	10	9	25	108	118	64	59	30	11	6	6	1	1	1	1
Tippecanoe.....	83	65	68	58	68	61	75	79	69	70	61	68	7	70	370	451	316	251	102	40	17	17	2	2	2	2
Tipton.....	28	31	31	24	34	32	41	29	29	24	29	27	7	36	158	183	118	110	47	16	11	11	1	1	3	1
Union.....	6	12	10	10	9	5	9	16	12	11	8	9	2	16	54	56	40	39	18	5	2	2	1	1	10	10
Vanderburgh.....	145	157	145	121	136	143	147	132	138	150	149	149	32	179	853	1,010	557	443	213	39	1	1	1	1	22	22
Vermillion.....	86	44	41	64	48	44	61	66	57	41	37	48	9	246	326	253	175	80	33	17	17	1	1	2	2	1
Vigo.....	174	192	166	183	151	145	182	161	145	153	197	36	299	226	1,064	725	515	237	81	30	7	7	2	2	22	22
Wabash.....	43	39	54	52	41	40	47	42	61	51	36	41	8	50	279	323	189	155	64	20	7	7	1	1	2	2

TABLE No. 17—Continued.

COUNTIES	1916												GROUPED AGES OF PARENTS															
													Under 20		20 to 30		30 to 40		40 to 50		50 to 60		60 to 70	70 to 80	Not Reported			
													Fathers	Mothers	Fathers	Mothers	Fathers	Mothers	Fathers	Mothers	Fathers	Mothers	Fathers	Mothers				
Warren.....	19	21	29	16	20	20	22	18	14	15	12	21	2	27	107	132	81	57	32	10	4	.....	.....	.....	.....	.....	.....	.....
Warrick.....	48	55	33	27	31	25	31	41	40	17	27	25	6	37	172	230	143	106	55	20	13	.....	.....	.....	.....	.....	.....	.....
Washington.....	35	54	39	25	26	23	26	28	33	25	35	26	6	51	160	194	145	105	48	20	6	.....	.....	.....	.....	.....	.....	.....
Wayne.....	88	65	82	68	83	82	76	83	80	80	77	74	14	99	463	522	329	267	103	44	20	.....	.....	.....	.....	.....	.....	.....
Wells.....	35	39	39	31	43	38	45	35	47	38	30	35	8	46	225	260	152	123	58	23	6	.....	.....	.....	.....	.....	.....	.....
White.....	47	46	47	37	32	30	38	31	33	30	29	31	11	45	192	239	146	124	70	21	7	.....	.....	.....	.....	.....	.....	.....
Whitley.....	34	30	29	34	30	35	26	40	36	29	36	19	9	54	173	191	136	109	52	19	4	.....	.....	.....	.....	.....	.....	.....
Grand Total.....	5,575	5,408	5,699	5,377	5,276	4,945	5,315	5,463	5,303	4,921	4,848	5,182	1,000	6,726	29,373	35,291	22,825	17,914	7,954	2,697	1,090	4	88	13	338	49	.....	.....

TABLE No. 18.

*Number of Children Born, Sex, Color; Number of Children Born to Each Mother; Nationality of Parents.*

COUNTIES	SEX			COLOR				NUMBER OF CHILDREN BORN TO EACH MOTHER												NATIONALITY OF PARENTS												
	SEX			White		Colored														American			Foreign			Not Reported						
				White		Colored														Fathers			Mothers				Fathers			Mothers		
																				Females			Males				Females			Males		
	Total No.	Males	Females	Males	Females	Males	Females	First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth	Eleventh	Twelfth and Over	Not Reported	Fathers	Mothers	Fathers	Mothers	Fathers	Mothers						
Adams.....	552	280	272	280	272	...	...	129	112	87	71	40	36	28	14	13	7	7	7	1	537	544	9	9	3	3						
Allen.....	2,274	1,136	1,138	1,127	1,131	...	...	668	603	353	233	140	82	73	55	32	11	8	15	1	1,997	2,051	237	202	20	1						
Bartholomew.....	513	251	262	249	260	...	...	145	115	86	47	45	30	12	13	10	2	4	4	...	494	500	8	4	2	...						
Benton.....	271	146	125	145	125	...	...	77	63	41	31	19	15	10	4	2	5	2	2	...	261	264	10	7	...	...						
Blackford.....	430	233	197	233	197	...	...	103	89	81	60	35	18	19	7	7	3	6	2	...	412	421	12	7	4	...						
Boone.....	481	253	228	252	228	...	...	130	126	83	61	27	21	10	8	7	4	3	1	...	476	476	3	3	...	...						
Brown.....	153	86	67	86	67	...	...	27	20	28	21	10	17	8	6	6	3	1	6	...	147	150	4	2	1	...						
Carroll.....	335	172	163	172	163	...	...	86	72	56	42	24	18	14	6	10	1	2	3	1	330	330	...	...	...	...						
Cass.....	789	408	381	406	381	...	...	242	182	130	91	51	28	32	14	7	2	8	2	...	730	734	48	45	1	...						
Clark.....	492	247	245	236	228	11	17	141	96	74	61	33	27	21	14	8	6	6	5	1	483	486	4	1	...	...						
Clay.....	602	300	302	295	298	5	4	156	112	102	63	50	36	26	27	12	6	4	8	...	575	580	19	15	1	...						
Clinton.....	557	298	259	298	257	2	...	150	138	89	65	36	38	15	8	4	4	3	7	...	541	545	5	5	4	...						
Crawford.....	250	116	134	116	134	...	...	71	43	30	29	24	12	15	15	6	2	1	2	...	247	248	...	...	...	...						
Davis.....	663	330	330	343	319	...	...	165	123	116	74	56	44	31	22	10	12	5	5	...	649	650	3	5	3	...						
Dearborn.....	395	189	206	186	205	3	1	91	86	60	45	46	30	10	11	8	5	2	1	...	383	388	8	4	1	...						
Decatur.....	370	189	181	189	181	...	...	99	81	59	44	21	19	20	8	8	5	3	2	1	355	359	8	6	2	...						
Dekalb.....	567	295	272	295	272	...	...	157	131	91	67	44	33	17	14	6	3	2	2	...	530	535	29	26	2	...						
Delaware.....	1,230	593	627	578	609	15	18	347	314	192	127	77	49	42	32	16	8	6	10	...	1,177	1,188	25	17	3	...						
Dubuque.....	530	267	253	267	253	...	...	112	111	86	57	45	45	20	16	15	6	4	3	...	513	516	3	...	...	...						
Elkhart.....	1,209	627	582	627	582	...	...	343	311	192	131	78	48	35	24	12	14	12	7	2	1,146	1,154	51	45	2	...						



Laporte.....	1,115	598	517	595	516	3	1	284	258	175	122	91	67	32	26	19	15	7	19	799	848	308	261	2
Lawrence.....	1,840	425	415	422	413	3	2	187	108	150	85	71	55	36	28	8	9	2	11	815	818	13	11	1
Madison.....	1,445	731	714	726	709	5	5	398	339	218	167	110	73	45	33	24	19	10	9	1,357	1,381	64	49	9
Marion.....	6,179	3,182	2,967	2,943	2,773	239	224	2,071	1,609	832	611	357	215	167	91	53	38	22	23	5,555	5,695	535	443	1
Marshall.....	561	270	291	270	289	.....	2	157	120	84	62	47	24	20	21	7	9	4	6	544	554	11	2	1
Martin.....	298	178	128	170	128	.....	.....	64	60	49	35	26	26	11	7	6	8	1	2	294	294	1	1	1
Miami.....	625	335	290	333	288	2	2	185	151	104	64	50	34	15	7	3	11	5	4	598	603	15	13	3
Monroe.....	637	317	340	313	335	4	5	146	162	90	77	52	39	32	22	17	11	5	4	629	639	9	4	5
Montgomery.....	593	274	321	271	319	3	2	129	134	98	66	42	29	28	16	3	6	1	1	578	584	5	1	2
Morgan.....	439	220	219	220	219	.....	.....	112	103	63	46	31	32	22	13	6	7	1	3	428	431	3	2	2
Newton.....	254	139	115	139	115	.....	.....	66	52	38	35	16	21	10	8	4	2	1	1	244	247	7	4	1
Noble.....	505	255	250	255	250	.....	.....	141	129	84	56	28	22	12	15	8	4	5	1	493	502	9	1	1
Ohio.....	73	42	31	42	30	.....	.....	1	14	17	15	9	5	6	3	2	2	1	2	70	71	.....	.....	1
Orange.....	412	209	203	208	200	1	3	119	92	64	48	33	19	16	12	5	2	1	1	406	406	.....	.....	1
Owen.....	259	146	113	144	112	2	1	58	51	40	31	29	16	15	7	6	2	1	3	256	256	.....	.....	1
Parke.....	404	205	199	203	199	2	.....	92	88	70	38	42	17	21	14	8	3	3	8	390	392	7	5	1
Perry.....	457	239	228	227	228	2	.....	107	85	66	65	41	34	21	21	8	2	5	2	449	453	4	1	1
Pike.....	484	255	229	254	229	1	.....	120	103	81	53	43	25	20	16	8	5	6	4	475	477	1	1	1
Porter.....	440	221	219	221	219	.....	.....	132	93	77	44	26	20	17	12	7	5	1	3	404	408	31	28	1
Posey.....	408	205	203	198	200	7	3	114	83	78	41	23	26	20	9	7	3	2	2	403	404	.....	1	2
Pulaski.....	287	146	141	146	141	.....	.....	62	58	39	36	26	15	15	12	7	8	1	8	275	278	8	6	1
Putnam.....	405	214	191	211	189	3	2	108	88	66	45	35	26	19	11	7	1	1	2	399	401	.....	2	2
Randolph.....	560	300	260	290	260	1	.....	155	123	97	66	45	38	10	11	10	1	2	4	549	552	2	1	2
Ripley.....	327	191	186	191	186	.....	.....	89	87	47	45	35	18	14	7	6	4	1	4	346	348	6	5	1
Rush.....	423	207	216	205	216	2	.....	127	113	64	37	37	10	12	10	5	2	3	3	418	419	1	1	1
Scott.....	183	96	87	96	87	.....	.....	44	38	21	18	26	10	9	7	5	1	1	3	180	182	.....	1	3
Shelby.....	487	246	247	237	246	3	1	151	108	79	46	38	26	21	9	7	1	1	2	477	481	3	.....	2
Spencer.....	361	164	197	158	183	6	4	84	70	73	49	28	25	11	15	4	3	2	2	359	360	1	.....	1
Stark.....	278	141	137	141	137	.....	.....	60	54	41	35	29	15	12	10	10	9	2	1	239	248	34	31	4
Steuben.....	244	125	119	125	119	.....	.....	64	63	38	27	24	11	7	9	1	.....	.....	241	242	2	1	.....	
St. Joseph.....	2,556	1,393	1,163	1,388	1,161	5	2	693	581	411	255	213	136	101	58	42	26	19	21	1,515	1,634	1,019	902	2
Sullivan.....	827	420	407	419	406	1	1	192	179	138	96	69	40	29	22	14	12	3	13	754	769	59	48	4
Switzerland.....	271	100	117	100	116	.....	.....	31	30	14	4	3	2	3	7	5	3	1	3	209	212	3	1	1
Tipton.....	835	408	420	403	418	2	2	247	197	138	78	60	34	25	18	11	9	1	8	773	792	40	22	1
Typee.....	350	179	171	179	171	.....	.....	84	65	68	43	35	19	13	7	5	4	1	6	340	345	4	1	2
Union.....	53	64	53	64	53	.....	.....	37	18	24	14	8	8	.....	1	1	4	.....	2	116	116	.....	.....	6
Vanderburgh.....	1,726	886	840	839	809	47	31	1,528	1,271	88	77	39	39	36	22	16	17	13	5	1,655	1,670	44	35	6
Vermilion.....	610	320	290	320	290	.....	.....	152	127	88	77	39	39	36	22	16	7	3	3	1,442	1,462	161	143	2
Vigo.....	2,002	1,011	991	982	942	29	29	586	442	334	210	121	102	71	53	33	19	8	24	1,796	1,844	164	136	20
Walsh.....	552	294	258	291	253	3	3	154	133	105	51	37	31	13	10	9	5	3	1	542	545	6	5	2

TABLE No. 18—Continued.

COUNTIES	SEX		COLOR				NUMBER OF CHILDREN BORN TO EACH MOTHER											NATIONALITY OF PARENTS								
			White		Colored		First	Second	Third	Fourth	Fifth	Sixth	Seventh	Eighth	Ninth	Tenth	Eleventh	Twelfth and Over	Not Reported	American		Foreign		Not Reported		
	Males	Females	Males	Females	Fathers	Mothers														Fathers	Mothers	Fathers	Mothers			
Warren .....	227	113	114	113	114	65	59	33	24	7	10	12	6	5	3	3	3	225	225	1	1	1	1	1	1	
Warrick .....	400	212	186	212	185	104	86	63	52	36	13	11	15	9	4	4	2	391	383	2	2	1	1	1	2	
Washington .....	378	195	183	185	183	95	96	57	33	30	24	16	11	9	4	2	1	368	370	1	1	1	1	1	2	
Wayne .....	938	489	449	471	433	253	228	166	98	59	47	39	18	12	8	6	4	897	904	34	29	2	2	2	2	
Wells .....	455	230	255	230	255	127	97	79	55	29	25	18	10	10	4	1	...	447	451	4	4	2	2	2	2	
White .....	431	222	209	222	209	119	103	69	42	30	20	15	19	5	2	4	2	418	425	11	4	1	4	1	6	
Whitley .....	378	185	183	185	183	114	88	60	28	24	13	26	14	5	2	2	2	373	374	1	1	1	1	1	6	
Grand Total .....	63,312	32,421	30,891	31,911	30,432	510	459	17,326	14,587	10,155	6,966	4,759	3,236	2,296	1,583	986	601	352	428	27	36,106	57,153	6,324	5,522	248	6

TABLE No. 19.

*Plural Births, Illegitimate Births, Stillbirths.*

COUNTIES	PLURAL BIRTHS—TWINS, 625—TRIPLTS, 2.							
	No.	Sex of Children		Nationality of Mother			Color of Mother	
		Males	Females	American	Foreign	Not Reported	White	Colored
Adams.....	5	7	3	5			5	
Allen.....	20	17	23	17	3		20	
Bartholomew.....	9	11	7	9			9	
Benton.....								
Blackford.....	2	1	3	2			2	
Boone.....	2	2	2	2			2	
Brown.....	1	1		1			1	
Carroll.....	5	5	5	5			5	
Cass.....	10	8	12	8	2		10	
Clark.....	5	6	4	5			5	
Clay.....	7	10	4	7			6	1
Clinton.....	7	6	8	7			7	
Crawford.....	2		4	2			2	
Davies.....	8	6	10	8			8	
Dearborn.....	3	1	5	3			3	
Decatur.....	5	7	3	4	1		5	
Dekalb.....	6	10	2	6			6	
Delaware.....	15	11	19	15			14	1
Dubois.....	4	4	4	4			4	
Elkhart.....	*9	8	11	8	1		9	
Fayette.....	4	3	5	4			4	
Floyd.....	12	12	12	12			12	
Fountain.....	3	5	1	3			3	
Franklin.....	4	3	5	4			4	
Fulton.....	3	5	1	3			3	
Gibson.....	7	5	9	7			7	
Grant.....	9	10	8	7	2		9	
Greene.....	9	8	10	8	1		9	
Hamilton.....	5	8	2	5			5	
Hancock.....	2	1	3	2			2	
Harrison.....	7	7	7	7			7	
Hendricks.....	3	2	4	3			2	1
Henry.....	8	8	8	8			8	
Howard.....	6	6	6	6			6	
Huntington.....	10	10	10	10			10	
Jackson.....	6	8	4	6			6	
Jasper.....								
Jay.....	1	1	1	1			1	
Jefferson.....	3	4	2	3			2	1
Jennings.....	1		2	1			1	
Johnson.....	6	6	6	6			6	
Knox.....	16	16	14	15	1		16	
Kosciusko.....	12	11	13	11	1		12	
Lagrange.....	5	6	4	5			5	
Lake.....	46	42	51	10	36		46	
Laporte.....	6	3	9	6			6	
Lawrence.....	11	9	13	11			10	1
Madison.....	15	12	18	15			14	1
Marion.....	40	46	34	35	5		39	1
Marshall.....	4	4	5	4			4	
Martin.....	2	1	4	2			2	
Miami.....	9	11	7	9			8	1
Monroe.....	14	16	12	14			13	1
Montgomery.....	10	13	7	10			10	
Morgan.....	6	6	6	6			6	

TABLE No. 19—Continued.

COUNTIES	PLURAL BIRTHS—TWINS, 625—TRIPLTS, 2.							
	No.	Sex of Children		Nationality of Mother			Color of Mother	
		Males	Females	American	Foreign	Not Reported	White	Colored
Newton.....	3	5	1	3			3	
Noble.....	2	3	1	2			2	
Ohio.....	2	2	2	2			2	
Orange.....	6	2	10	6			6	
Owen.....	3	3	3	3			3	
Parke.....	7	9	5	7			7	
Perry.....	3	4	2	3			3	
Pike.....	7	8	6	7			7	
Porter.....	4	4	4	4			4	
Posey.....	3	2	4	3			1	2
Pulaski.....	3	5	1	3			3	
Putnam.....	4	3	5	4			4	
Randolph.....	7	6	8	7			7	
Ripley.....	4	5	3	4			4	
Rush.....	3	1	5	3			3	
Scott.....								
Shelby.....	5	4	6	5			5	
Spencer.....	1	1	1	1			1	
Starke.....	1	1	1	1			1	
Steuben.....	1	1	1	1			1	
St. Joseph.....	20	18	22	12	8		20	
Sullivan.....	10	15	5	10			10	
Switzerland.....	4	2	6	4			4	
Tippecanoe.....	11	14	8	11			11	
Tipton.....	4	3	5	4			4	
Union.....	1		2	1			1	
Vanderburgh.....	21	20	22	21			19	2
Vermillion.....	5	7	3	4	1		5	
Vigo.....	*21	21	22	19	2		20	1
Wabash.....	2	3	1	2			2	
Warren.....	1	2		1			1	
Warrick.....	6	4	8	6			6	
Washington.....	7	11	3	7			7	
Wayne.....	5	5	5	5			5	
Wells.....	2	1	3	2			2	
White.....	2	3	1	2			2	
Whitley.....	4	5	3	4			4	
Grand Total.....	625	628	624	561	64		611	14

\*Triplets



TABLE No. 19—Continued.

*Plural Births, Illegitimate Births, Stillbirths.*

COUNTIES	ILLEGITIMATE BIRTHS.							
	No.	Sex of Children		Nationality of Mother			Color of Mother	
		Males	Females	American	Foreign	Not Reported	White	Colored
Adams.....	7	5	2	7			7	
Allen.....	26	14	12	26			26	
Bartholomew..	10	4	6	10			10	
Benton.....	1		1	1			1	
Blackford.....	7	5	2	7			7	
Boone.....	2	2		2			2	
Brown.....	3	2	1	3			3	
Carroll.....	2	1	1	2			2	
Cass.....	5	3	2	5			5	
Clark.....	10	2	8	10			6	4
Clay.....	8	4	4	8			8	
Clinton.....	9	7	2	9			9	
Crawford.....	6	1	5	6			6	
Davies.....	7	1	6	7			7	
Dearborn.....	7	1	6	7			7	
Decatur.....	3	2	1	3			3	
Dekalb.....	7	5	2	7			7	
Delaware.....	15	8	7	15			10	5
Dubois.....	8	3	5	8			8	
Elkhart.....	15	10	5	15			15	
Fayette.....	5	2	3	5			5	
Floyd.....	10	3	7	10			10	
Fountain.....	3	2	1	3			3	
Franklin.....	2		2	2			2	
Fulton.....	3	2	1	3			3	
Gibson.....	21	9	12	21			17	4
Grant.....	14	3	11	14			11	3
Greene.....	9	4	5	9			9	
Hamilton.....	6	2	4	6			4	2
Hancock.....	1	1		1			1	
Harrison.....	10	5	5	10			9	1
Hendricks.....	3	1	2	3			3	
Henry.....	7	3	4	7			5	2
Howard.....	13	5	8	13			12	1
Huntington.....	1		1	1			1	
Jackson.....	11	4	7	11			11	
Jasper.....	1	1		1			1	
Jay.....	8	2	6	8			7	1
Jefferson.....	3	1	2	3			3	
Jennings.....	7	5	2	7			6	1
Johnson.....	7	5	2	7			5	2
Knox.....	20	11	9	20			19	1
Kosciusko.....	11	4	7	11			11	
Lagrange.....	3	1	2	3			3	
Lake.....	*21	8	14	14	7		20	1
Laporte.....	10	8	2	8	2		10	
Lawrence.....	7	4	3	7			7	
Madison.....	28	15	13	26	2		26	2
Marion.....	188	106	82	184	4		135	53
Marshall.....	8	2	6	8			8	
Martin.....	4	2	2	4			4	
Miami.....	4	2	2	4			4	
Monroe.....	10	8	2	10			10	
Montgomery.....	4	4		4			4	
Morgan.....	5	1	4	5			5	

TABLE No. 19—Continued.

COUNTIES	ILLEGITIMATE BIRTHS.							
	Sex of Children			Nationality of Mother			Color of Mother	
	No.	Males	Females	American	Foreign	Not Reported	White	Colored
Newton.....	4	1	3	4			4	
Noble.....	4	1	3	4			4	
Ohio.....	3		3	3			3	
Orange.....	5	4	1	5			5	
Owen.....	1		1	1			1	
Parke.....	7	4	3	7			7	
Perry.....	6	2	4	6			6	
Pike.....	13	6	7	13			13	
Porter.....	4	2	2	4			4	
Posey.....	7	4	3	7			6	1
Pulaski.....	3	2	1	3			3	
Putnam.....	6	2	4	6			6	
Randolph.....	9	5	4	9			9	
Ripley.....	3		3	3			3	
Rush.....	7	3	4	7			7	
Scott.....	4	2	2	4			4	
Shelby.....	7	4	3	7			7	
Spencer.....	5	4	1	5			4	1
Starke.....	8	4	4	8			8	
Steuben.....								
St. Joseph.....	20	11	9	16	4		19	1
Sullivan.....	19	9	10	19			19	
Switzerland.....	4	2	2	4			4	
Tippecanoe.....	7	1	6	7			7	
Tipton.....	5	3	2	5			5	
Union.....								
Vanderburgh.....	38	18	20	38			27	11
Vermillion.....	7	3	4	7			7	
Vigo.....	51	25	26	50	1		48	3
Wabash.....	8	7	1	8			8	
Warren.....	3	1	2	3			3	
Warrick.....	4	2	2	4			4	
Washington.....	5	2	3	5			5	
Wayne.....	5	2	3	5			3	2
Wells.....	4	2	2	4			4	
White.....	4		4	4			4	
Whitley.....	4	2	2	4			4	
Grand Total..	920	456	465	900	20		818	102

• Twins.

TABLE No. 19—Continued.

*Plural Births, Illegitimate Births, Stillbirths.*

COUNTIES	STILLBIRTHS.							
	No.	Sex of Children		Nationality of Mother			Color of Mother	
		Males	Females	American	Foreign	Not Reported	White	Colored
Adams.....	19	10	9	19			19	
Allen.....	65	41	24	56	9		62	3
Bartholomew.....	9	3	6	9			9	
Benton.....	5	4	1	5			5	
Blackford.....	12	7	5	11	1		12	
Boone.....	15	7	8	15			15	
Brown.....	4	3	1	4			4	
Carroll.....	9	6	3	9			9	
Cass.....	23	19	4	21	2		23	
Clark.....	29	16	13	29			28	1
Clay.....	21	8	13	19	2		21	
Clinton.....	21	13	8	20	1		21	
Crawford.....	11	7	4	11			11	
Davies.....	19	13	6	19			18	1
Dearborn.....	6	3	3	6			6	
Decatur.....	15	11	4	15			15	
Dekalb.....	18	11	7	18			18	
Delaware.....	45	19	26	44	1		42	3
Dubois.....	11	8	3	11			11	
Elkhart.....	49	24	25	45	4		49	
Fayette.....	15	9	6	15			15	
Floyd.....	12	9	3	12			12	
Fountain.....	14	7	7	14			14	
Franklin.....	9	5	4	9			9	
Fulton.....	12	6	6	12			12	
Gibson.....	30	15	15	30			25	5
Grant.....	44	27	17	42	2		40	4
Greene.....	20	10	10	20			20	
Hamilton.....	25	13	12	25			25	
Hancock.....	11	5	6	11			11	
Harrison.....	19	12	7	19			19	
Hendricks.....	10	8	2	10			10	
Henry.....	32	20	12	31	1		32	
Howard.....	23	11	12	23			23	
Huntington.....	23	12	11	23			23	
Jackson.....	14	7	7	14			14	
Jasper.....	10	5	5	10			10	
Jay.....	9	4	5	9			8	1
Jefferson.....	13	9	4	13			13	
Jennings.....	10	7	3	10			10	
Johnson.....	11	7	4	11			11	
Knox.....	35	19	16	29	6		32	3
Kosciusko.....	16	11	5	16			16	
Lagrange.....	14	9	5	14			14	
Lake.....	148	90	58	59	89		145	3
Laporte.....	39	24	15	34	5		39	
Lawrence.....	24	14	10	23	1		24	
Madison.....	58	38	20	55	3		57	1
Marion.....	229	130	99	212	14	3	202	27
Marshall.....	18	12	6	16	2		18	
Martin.....	10	5	5	10			10	
Miami.....	21	12	9	21			20	1
Monroe.....	26	18	8	25	1		25	1
Montgomery.....	11	5	6	11			11	
Morgan.....	17	9	8	16	1		17	

TABLE No. 19—Continued.

COUNTIES	STILLBIRTHS.							
	No.	Sex of Children		Nationality of Mother			Color of Mother	
		Males	Females	American	Foreign	Not Reported	White	Colored
Newton.....	8	5	3	8			8	
Noble.....	15	8	7	15			15	
Ohio.....	3	1	2	3			2	1
Orange.....	13	3	10	13			12	1
Owen.....	7	2	5	7			7	
Parke.....	11	8	3	10	1		11	
Perry.....	21	14	7	21			21	
Pike.....	26	16	10	26			26	
Porter.....	14	8	6	14			14	
Posey.....	14	8	6	14			13	1
Pulaski.....	13	9	4	13			13	
Putnam.....	7	5	2	7			7	
Randolph.....	20	14	6	20			20	
Ripley.....	11	4	7	11			11	
Rush.....	12	9	3	12			12	
Scott.....	5	3	2	5			5	
Shelby.....	14	14		14			14	
Spencer.....	11	7	4	11			11	
Starke.....	9	5	4	7	2		9	
Steuben.....	6	4	2	6			6	
St. Joseph.....	96	59	37	48	48		96	
Sullivan.....	27	14	13	25	1	1	27	
Switzerland.....	5	3	2	5			5	
Tippecanoe.....	35	23	12	33	2		35	
Tipton.....	13	6	7	13			13	
Union.....	6	2	4	6			6	
Vanderburgh.....	62	33	29	58	4		54	8
Vermillion.....	21	11	10	18	3		21	
Vigo.....	91	53	38	79	12		88	3
Wabash.....	20	11	9	20			20	
Warren.....	9	6	3	9			9	
Warrick.....	12	9	3	11	1		12	
Washington.....	11	4	7	11			11	
Wayne.....	18	11	7	17	1		18	
Wells.....	8	6	2	8			8	
White.....	15	6	9	15			15	
Whitley.....	14	11	3	14			14	
Grand Total.	2141	1,252	889	1,917	220	4	2,073	68

TABLE No. 20.

*Marriages by Months, Color and Nationality, for the Year Ending December 31, 1916.*

COUNTIES	MONTHS												COLOR				NATIONALITY				Total		
													White		Colored		American		Foreign			Not Reported	
	January	February	March	April	May	June	July	August	September	October	November	December	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides			
Adams.....	10	9	12	12	14	19	11	7	16	19	21	162	162	162	162	162	162	162	162				
Allen.....	47	40	60	51	78	133	54	67	94	113	98	906	875	883	49	39	2	4	4				
Bartholomew.....	16	19	23	15	23	14	20	18	21	25	33	248	246	244	3	5	1	1	1				
Benton.....	7	14	2	3	5	1	5	5	11	11	10	77	77	77	1	1	1	1	1				
Blackford.....	13	9	11	10	6	22	9	5	16	17	16	158	157	157	1	1	1	1	1				
Boone.....	17	18	23	23	11	17	13	21	31	20	18	213	215	215	2	2	2	2	2				
Brown.....	6	4	6	6	4	2	6	9	3	6	5	68	68	68	1	1	1	1	1				
Carroll.....	9	17	12	14	7	9	9	13	14	16	16	145	143	145	2	2	2	2	2				
Cass.....	30	28	24	18	25	38	25	24	27	36	22	318	317	324	60	52	27	38	38				
Clark.....	100	76	80	120	96	128	106	110	103	78	145	1,061	1,233	1,236	10	7	1	1	1				
Clay.....	25	25	10	48	10	36	27	20	25	41	29	310	314	315	3	2	2	2	2				
Clinton.....	14	38	19	16	13	13	13	25	20	32	22	272	272	272	1	1	1	1	1				
Crawford.....	9	7	10	6	5	11	7	7	3	10	15	96	96	96	1	1	1	1	1				
Davies.....	21	12	31	11	21	17	17	13	21	15	25	240	240	240	29	29	240	240	240				
Dearborn.....	7	20	15	7	12	25	17	24	23	22	25	214	215	216	1	1	1	1	1				
Decatur.....	10	13	11	5	13	14	11	25	10	11	13	140	142	143	1	1	1	1	1				
DeKalb.....	12	19	20	23	25	15	21	9	16	16	7	224	215	224	9	9	1	1	1				
Delaware.....	48	47	35	35	36	54	68	49	38	72	27	539	500	539	12	4	55	56	56				
Dubois.....	10	8	7	11	23	10	3	4	18	20	9	128	128	128	19	18	8	8	8				
Elkhart.....	35	39	38	49	34	66	40	40	42	44	40	522	496	497	1	1	1	1	1				

TABLE No. 20—Continued.

COUNTIES	MONTHS												COLOR		NATIONALITY						Total		
	January	February	March	April	May	June	July	August	September	October	November	December	White	Colored	American		Foreign		Not Reported				
															Grooms	Brides	Grooms	Brides	Grooms	Brides		Grooms	Brides
Fayette.....	5	11	3	13	8	12	7	15	17	13	9	5	117	5	122	122	3	1	3	7	122		
Floyd.....	29	24	18	16	28	36	29	30	2	28	24	18	300	18	312	310	3	1	3	7	318		
Fountain.....	19	22	20	18	17	16	11	19	23	20	16	17	214	4	217	217	1	1	1	1	218		
Franklin.....	11	11	7	5	8	16	7	11	13	13	8	10	120	120	120	120	131	131	131	131	120		
Fulton.....	8	12	15	10	7	11	7	11	11	8	14	17	131	131	131	131	131	131	131	131	131		
Gibson.....	27	23	11	36	21	20	28	21	28	22	25	20	263	19	290	281	2	1	1	1	282		
Grant.....	31	55	40	48	36	68	68	52	40	53	39	53	560	23	577	580	6	3	3	3	583		
Greene.....	24	26	28	33	19	35	16	26	28	28	40	30	331	6	322	325	9	6	6	6	331		
Hamilton.....	15	26	16	17	16	19	16	15	23	28	19	24	228	3	231	233	3	1	1	1	234		
Hancock.....	12	12	14	8	16	25	11	13	16	20	16	20	180	3	179	179	4	4	4	4	183		
Harrison.....	12	5	9	12	7	5	8	9	5	15	6	10	102	1	103	103	1	1	1	1	103		
Henricks.....	10	3	12	18	6	14	11	11	21	10	16	16	147	1	148	148	1	1	1	1	148		
Henry.....	25	29	23	22	21	35	33	30	30	38	18	36	332	7	338	338	1	1	1	1	339		
Howard.....	26	38	45	29	34	41	29	36	36	35	32	36	400	15	400	403	6	3	9	9	415		
Huntington.....	17	15	11	34	17	22	19	16	23	22	19	24	239	2	237	237	2	2	2	2	239		
Jackson.....	10	14	17	17	20	14	12	23	20	16	19	20	201	1	201	201	1	1	1	1	202		
Jasper.....	11	18	5	13	8	5	8	5	9	16	8	15	121	1	100	105	15	11	6	5	121		
Jay.....	17	19	17	22	11	23	6	14	16	16	12	21	184	1	125	125	13	13	46	46	184		
Jefferson.....	19	19	10	16	16	12	17	16	13	13	13	17	186	10	185	186	1	1	1	1	196		
Jennings.....	10	8	8	9	9	12	10	12	17	13	13	14	181	3	183	183	1	1	1	1	184		
Johnson.....	18	16	14	15	14	15	14	20	15	19	16	11	182	6	188	188	1	1	1	1	188		
Knox.....	29	33	47	42	43	30	36	38	40	48	53	60	498	10	491	503	17	5	5	5	508		
Kosciusko.....	16	18	19	20	8	33	12	8	20	21	23	20	218	8	212	218	5	1	1	1	218		
Kosciusko.....	13	12	12	5	5	12	14	6	6	8	8	12	118	2	118	118	2	2	2	2	118		
Lafayette.....	276	257	244	266	324	471	372	301	322	350	326	351	3,667	153	2,829	2,969	990	829	1	2	3,820		
Lake.....	35	44	35	41	40	63	81	13	33	39	56	20	472	28	435	450	65	50	50	50	500		
Laporte.....	36	16	20	30	17	20	24	19	20	35	24	24	285	6	285	287	8	4	4	4	291		
Lawrence.....																					300		

Madison.....	50	43	42	54	56	60	56	47	51	66	54	74	643	10	635	642	18	11	20	653
Marion.....	204	214	236	311	289	510	308	321	382	397	347	384	3,076	827	3,324	3,429	555	454	24	3,903
Marshall.....	17	26	13	22	14	31	19	16	20	16	15	15	224	.....	222	224	2	.....	.....	224
Martin.....	4	8	10	10	10	10	9	8	13	11	17	5	115	.....	115	115	.....	.....	.....	115
Miami.....	10	12	8	42	17	7	37	19	22	21	28	6	236	3	239	239	.....	.....	.....	239
Monroe.....	17	18	28	28	21	30	21	25	24	32	24	33	289	2	289	287	.....	.....	2	291
Montgomery.....	23	34	12	14	17	22	8	20	26	17	15	23	231	1	231	231	.....	.....	.....	231
Morgan.....	8	10	14	25	11	17	16	14	26	17	19	27	204	.....	204	204	.....	.....	.....	204
Newton.....	3	8	7	1	2	3	.....	8	6	5	10	13	66	.....	65	65	1	1	.....	66
Noble.....	9	11	19	9	12	15	13	7	24	2	7	19	165	.....	165	164	.....	.....	.....	165
Ohio.....	2	2	6	5	10	.....	5	5	2	2	3	4	42	1	43	43	.....	.....	.....	43
Orange.....	14	11	12	16	16	17	10	21	5	14	18	12	159	7	166	166	7	1	61	166
Owen.....	11	7	8	13	2	9	15	7	10	14	10	17	123	.....	55	56	.....	.....	.....	123
Parke.....	14	4	10	7	11	13	10	9	16	13	12	13	132	.....	127	131	3	.....	2	133
Perry.....	6	8	10	11	14	12	11	10	11	26	16	15	147	3	150	150	.....	.....	.....	150
Pike.....	10	8	15	11	9	18	11	12	18	17	17	19	163	2	165	165	.....	.....	.....	165
Porter.....	27	25	17	21	23	33	23	27	28	36	28	21	309	2	281	285	28	22	.....	309
Pose.....	13	27	17	6	34	43	.....	23	18	16	42	32	267	2	269	269	.....	.....	.....	269
Pulaski.....	6	13	11	4	6	12	4	3	8	8	7	5	87	.....	87	87	.....	.....	.....	87
Putnam.....	14	19	13	15	10	15	11	23	18	18	20	19	194	1	156	156	.....	.....	.....	195
Randolph.....	26	15	23	18	25	21	21	24	17	29	32	43	292	2	294	294	.....	39	30	294
Ripley.....	9	6	6	10	7	17	10	3	7	12	10	11	108	.....	108	108	.....	.....	.....	108
Rush.....	16	7	4	9	10	7	15	12	16	15	12	7	127	3	130	130	.....	.....	.....	130
Scott.....	8	5	9	12	1	12	2	4	6	4	4	13	80	.....	80	79	.....	1	.....	80
Shelby.....	18	18	12	17	12	18	13	17	24	25	21	13	208	.....	208	208	.....	.....	.....	208
Sherrill.....	28	20	17	12	26	24	27	36	20	31	32	28	283	16	296	296	.....	5	5	301
Shurtleff.....	10	10	4	5	8	10	5	5	5	16	17	6	94	.....	90	83	14	11	.....	94
Staub.....	11	9	6	8	6	12	9	12	9	11	10	12	121	1	122	122	.....	.....	.....	122
St. Joseph.....	75	84	80	51	85	93	96	72	89	90	82	90	973	14	757	817	229	168	1	987
Sullivan.....	18	20	23	33	16	18	24	14	24	28	22	22	242	.....	251	255	11	7	.....	262
Switzerland.....	3	11	3	6	1	16	.....	2	3	4	4	4	52	.....	52	53	.....	.....	.....	53
Tippecanoe.....	29	32	24	25	25	5	27	26	53	44	38	44	406	14	401	415	19	5	.....	430
Tipson.....	10	14	16	20	11	8	13	8	9	9	13	12	142	.....	142	142	.....	.....	.....	142
Union.....	4	5	2	4	4	3	4	5	3	3	7	8	51	1	51	51	1	1	.....	52
Vanderburgh.....	86	68	87	60	75	128	88	88	100	107	89	143	1,045	112	1,097	1,110	20	7	.....	1,117
Vermillion.....	11	8	6	18	4	8	15	4	12	10	8	16	120	.....	146	163	24	17	.....	120
Vigo.....	89	83	85	98	105	142	108	107	121	128	131	140	1,232	76	1,267	1,283	71	45	.....	1,328
Wabash.....	13	24	19	8	13	25	22	22	13	22	22	24	229	.....	229	229	.....	.....	.....	229

TABLE No. 20—Continued.

COUNTIES	MONTHS												COLOR		NATIONALITY						Total				
	January	February	March	April	May	June	July	August	September	October	November	December	White	Colored	American		Foreign		Not Reported						
															Grooms	Brides	Grooms	Brides	Grooms	Brides		Grooms	Brides	Grooms	Brides
Warren.....	6	14	3	4	7	7	9	5	6	8	7	12	88	6	69	70	16	15	3	3	88				
Warrick.....	9	4	17	23	16	11	9	15	22	9	10	10	149	6	155	155	1	1	3	3	155				
Washington.....	2	18	13	7	7	12	6	13	12	9	15	20	134	1	133	133	1	1	1	1	134				
Wayne.....	26	38	30	31	24	46	30	25	46	26	31	48	377	24	394	397	7	4	4	4	401				
Wells.....	12	6	6	7	5	28	7	10	7	15	11	18	132	1	132	132	1	1	1	1	132				
White.....	15	9	16	8	13	14	5	13	7	15	15	27	157	1	156	156	1	1	1	1	157				
Whitley.....	20	16	11	15	9	8	11	12	14	13	10	16	155	1	155	155	1	1	1	1	155				
Grand Total .....	2,241	2,296	2,198	2,427	2,334	3,374	2,546	2,516	2,793	3,011	2,804	3,000	29,838	1,702	28,991	29,381	2,353	1,940	296	319	31,540				



TABLE No.21.  
*Marriages, Grouped Ages, for the Year Ending December 31, 1917.*

COUNTIES	Under 20		20 to 30		30 to 40		40 to 50		50 to 60		60 to 70		70 to 80		80 and over		Not Reported		Total
	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides	
Adams.....	7	50	130	92	23	11	6	5	3	2	1	1	3	1	1	1	1	1	162
Allen.....	12	140	620	690	172	113	68	39	25	15	17	5	2	2	1	1	1	1	926
Bartholomew..	4	55	180	137	46	38	22	12	11	7	5	1	1	1	1	1	1	1	249
Benton.....	1	20	61	48	6	8	4	2	1	1	1	1	1	1	1	1	1	1	78
Blackford.....	13	50	100	75	19	13	13	12	9	5	2	3	2	2	1	1	1	1	158
Boone.....	4	32	122	130	41	33	29	16	16	4	2	1	1	1	1	1	1	1	215
Brown.....	5	35	149	95	9	6	3	1	1	1	1	1	1	1	1	1	1	1	148
Carroll.....	5	60	102	72	13	9	8	7	4	2	2	2	2	2	1	1	1	1	135
Cass.....	8	67	229	196	54	34	18	17	15	7	9	2	2	2	1	1	1	1	324
Clark.....	15	396	827	635	259	136	95	47	21	5	5	2	1	2	2	20	20	20	1,243
Clay.....	8	72	199	185	64	32	29	17	9	7	5	4	3	3	1	1	1	1	317
Clinton.....	7	53	184	164	38	32	19	7	5	8	4	4	6	6	1	1	1	1	273
Crawford.....	4	40	83	44	11	6	6	3	5	3	1	2	1	1	1	1	1	1	96
Davies.....	8	70	186	138	26	18	10	9	8	3	1	2	1	1	1	1	1	1	240
Dearborn.....	4	35	144	139	40	26	14	11	9	3	1	1	1	1	1	1	1	1	216
Decatur.....	5	38	87	78	28	16	10	6	7	4	4	1	2	2	1	1	1	1	143
Delaware.....	4	61	157	129	32	13	10	14	7	12	11	5	3	3	1	1	1	1	224
Dubuque.....	49	198	369	267	76	56	40	27	17	13	10	4	5	1	1	1	1	1	667
Dubuque.....	4	16	86	97	32	11	1	1	3	2	2	2	1	1	1	1	1	1	128
Elkhart.....	26	155	365	289	61	36	26	25	14	14	8	1	3	1	1	1	1	1	523
Fayette.....	3	34	93	72	16	10	5	6	3	3	1	1	1	1	1	1	1	1	122
Floyd.....	10	55	174	174	61	33	33	15	8	6	4	4	2	1	1	4	4	4	318
Franklin.....	3	39	143	111	38	20	19	17	7	7	5	4	3	1	1	1	1	1	218
Franklin.....	2	22	81	79	29	13	5	4	1	1	1	1	2	1	1	1	1	1	120
Fulton.....	3	36	102	76	12	11	8	5	4	1	2	2	1	1	1	1	1	1	131
Gibson.....	9	69	198	170	38	17	13	16	11	8	8	2	4	1	1	1	1	1	282
Grant.....	23	157	387	294	73	67	43	32	22	23	15	7	10	3	1	1	1	1	583
Greene.....	17	111	229	174	45	21	14	11	11	7	6	4	3	1	1	1	1	1	331
Hamilton.....	32	59	148	137	28	20	10	6	7	9	5	1	4	1	1	1	1	1	234
Hancock.....	9	61	116	89	37	20	10	6	4	5	4	1	3	2	1	1	1	1	183

TABLE No. 21—Continued.

COUNTIES	Under 20		20 to 30		30 to 40		40 to 50		50 to 60		60 to 70		70 to 80		80 and over		Not Reported		Total
	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides	Grooms	Brides			
Harrison.....	7	23	77	75	11	3	4	2	4	6	3	2							103
Hendricks.....	7	50	102	73	18	15	7	2	10	13	4	3							143
Henry.....	16	80	224	174	58	40	15	19	20	33	4	5	2						339
Howard.....	12	83	259	208	77	60	33	29	18	12	10	3	1			5	10		415
Huntington.....	22	82	153	117	36	18	10	10	11	6	4	5	3	1					239
Jackson.....	4	48	130	117	38	19	15	7	5	5	3	5	7	1					202
Jasper.....	1	19	87	81	21	10	4	7	4	2	1	1	1		1		1		121
Jay.....	8	50	134	101	19	16	9	8	5	5	6	2	3	2					184
Jefferson.....	14	69	130	95	27	21	14	5	8	5	3	1	2						196
Jennings.....	4	44	95	70	21	9	7	5	2	5	3	1	2						134
Johnson.....	6	43	115	115	31	18	18	8	11	3	3	1	1						188
Knox.....	41	180	339	226	70	47	27	27	19	19	4	3	2			6	6		508
Kosciusko.....	6	50	150	126	29	18	15	13	12	8	4	2	2	1					218
Lagrange.....	8	40	76	58	19	6	4	5	5	7	5	2	1						118
Lake.....	11	583	2,304	2,170	986	803	362	210	125	38	22	5	1			9	11		3,820
Laporte.....	9	135	342	290	100	48	32	17	10	9	6	1	1						500
Lawrence.....	28	111	180	126	40	22	21	18	6	5	11	7	5	2					291
Madison.....	66	250	410	277	97	72	38	29	26	16	6	7	9	2					653
Marion.....	370	584	1,408	1,443	1,211	1,112	517	450	258	202	92	69	17	16	2	1	28	26	3,903
Marshall.....	8	55	146	125	38	22	18	14	6	5	3	3	5	2		1			224
Martin.....	6	31	74	65	23	11	5	7	3	3	4	1							115
Miami.....	13	66	166	127	32	33	19	10	5	2	4	4	1						239
Monroe.....	20	111	197	141	41	20	18	8	11	7	3	4	1						291
Montgomery.....	11	70	152	119	40	21	14	12	6	6	4	3	3			1			231
Morgan.....	16	79	134	82	29	25	13	12	10	5	1	1			1				204
Newton.....	2	7	45	47	15	11	2	.....	1	.....	.....	1	1						66
Noble.....	10	56	108	79	26	9	10	15	6	4	4	2	1						165
Ohio.....	2	9	22	22	12	6	3	4	3	2	1	1							43
Orange.....	8	48	119	101	26	9	7	7	4	.....	.....	.....	1						166
Owen.....	5	30	74	71	28	9	6	7	5	2	4	4	1						123

Parke.....	7	41	64	69	11	8	8	7	5	4	4	3	1	2	2	2	2	132
Perry.....	8	48	110	83	16	11	8	5	4	4	1	2	2	2	2	2	2	150
Pike.....	19	55	101	90	26	9	10	5	5	4	3	3	2	3	3	1	1	165
Porter.....	5	55	187	75	52	21	18	16	6	5	3	3	2	1	3	3	3	309
Posey.....	5	74	181	151	48	30	22	9	6	6	3	4	1	2	1	1	1	269
Pulaski.....	3	15	63	65	13	13	3	4	5	5	3	5	4	5	5	1	1	87
Putnam.....	20	75	126	83	21	14	9	13	8	8	3	8	7	3	3	2	2	195
Randolph.....	13	64	215	184	33	19	15	14	7	7	4	8	7	3	3	2	1	294
Ripley.....	3	24	73	67	12	10	13	3	5	5	4	1	1	1	1	1	1	108
Rush.....	3	28	89	82	27	11	7	7	3	3	2	3	1	1	1	1	1	130
Scott.....	3	23	51	38	10	6	4	4	3	3	6	6	2	3	3	1	1	80
Shelby.....	6	52	131	115	43	20	15	10	8	7	3	3	3	1	1	1	1	208
Spencer.....	12	97	198	156	52	31	21	10	13	6	6	3	1	2	2	1	1	301
Starke.....	2	17	66	59	13	8	2	7	8	3	3	3	1	1	1	1	1	94
Steuben.....	1	25	70	71	28	10	9	6	1	1	3	10	6	3	3	1	1	122
St. Joseph.....	7	191	669	604	186	115	64	44	39	25	15	15	8	6	6	1	1	987
Sullivan.....	15	93	192	139	28	19	16	7	8	2	2	2	2	1	1	1	1	262
Switzerland.....	3	14	30	31	10	4	4	1	1	1	1	2	2	1	1	1	1	53
Tippecanoe.....	12	102	276	235	77	52	30	19	13	7	8	8	4	4	4	1	1	420
Tipton.....	5	41	87	61	30	25	6	4	5	5	4	4	5	5	5	1	1	142
Union.....	11	35	31	7	7	4	4	2	3	3	4	3	3	3	3	1	1	52
Vanderburgh.....	17	176	736	741	241	124	70	50	35	21	15	15	3	1	1	1	1	1,117
Vermillion.....	3	37	84	65	24	12	3	1	4	3	3	1	1	1	1	1	1	130
Vigo.....	76	374	863	680	237	162	88	70	45	33	11	11	8	7	1	1	1	1,328
Wabash.....	5	51	164	140	37	23	11	9	8	1	1	1	4	3	3	1	1	229
Warren.....	5	31	72	49	7	2	2	1	1	1	1	1	2	1	1	1	2	88
Warrick.....	3	43	118	83	28	14	4	4	1	1	1	1	1	1	1	1	1	155
Washington.....	12	53	90	66	19	8	5	5	3	1	1	2	3	3	3	1	1	124
Wayne.....	10	84	265	231	70	45	26	28	16	11	10	10	4	3	3	1	1	401
Wells.....	4	38	93	80	22	7	7	2	3	3	2	2	3	1	1	1	1	132
White.....	6	47	109	82	20	11	10	8	3	3	4	5	3	4	2	2	2	157
Whitley.....	7	41	118	94	16	9	4	5	5	4	4	3	2	2	2	1	1	155
Grand Total.....	1,346	7,547	19,666	16,745	6,137	4,296	2,394	1,746	1,184	767	497	282	214	60	18	2	84	95,31,540

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INDIANA STATE BOARD OF HEALTH

ELEVENTH ANNUAL REPORT

OF THE

Chemical Division

OF THE

Laboratory of Hygiene

FOR THE

YEAR ENDING SEPTEMBER 30, 1916

**LABORATORY STAFF.**

---

H. E. BARNARD, PH.D., Chemist in Charge and State Food and  
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FLOYD E. HUFF, B. A., Water Chemist.

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---

**OFFICE STAFF.**

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## **ELEVENTH ANNUAL REPORT OF THE CHEMICAL DEPARTMENT OF THE LABORATORY OF HYGIENE.**

**H. E. BARNARD, PH.D.**

The tabulations and summaries of the work done in the Chemical Division of the Laboratory of Hygiene of the State Board of Health as outlined in this, the eleventh annual report show little variation from those of other years. The larger field now occupied by the several departments does not limit, as once, the work of the chemists to the enforcement of the food and drugs act. The laboratories are now, more than ever before, devoted to the general work of the State Board of Health and food and drug control is but an incident to their operation.

The special studies of the public and private water supplies of the state are herein given at length in the belief that the data will be of interest to sanitarians and engineers as well as an evidence of the necessity for the work and an argument for its wider development. The continued interest of health officers and public officials in eliminating polluted water supplies, approving the safety of much used sources and devising means for the purification of streams and the better disposal of sewage is gratifying and is accepted as proof that these problems are today recognized as vital in the protection of the public health.

As in other years our great appreciation of the support given our work by the people and press of the state is gratefully acknowledged. The enforcement of the food and drug laws and the regulatory sanitary measures which now surround the production and sale of food succeeds when those concerned appreciate the motive back of the law, and fails when the officials are concerned only in arraigning offenders and in imposing penalties. The educational work done by the inspector in the field produces more lasting results than can ever be secured in the court room.

The department has been fortunate in retaining with but little change its corps of chemists, clerks and inspectors and credits no small part of its success to this fact.

### **RESULTS OF ANALYSIS OF FOOD SAMPLES.**

Thirteen hundred and eighty-five samples of food purchased by inspectors or sent in by health officers or interested consumers were examined at the laboratory during the year. Ten

hundred and sixty-six of these samples were legal and 319 or 23.1% were listed as illegal, either because they contained ingredients prohibited by the statute, such as chemical preservatives or bulk making cereals, or because they fell below the standard of normal composition or were misbranded or otherwise mislabeled. Many of the milk samples were reported as illegal, not because they were skimmed or watered, but because they contained visible dirt, an evidence of impurity of far greater import than dilution or the theft of butter fat. The percentage of adulteration factor is further swelled by the inclusion of such samples as cider, of which 18 out of 20 were listed as illegal because of the high alcohol content, and of vinegar, of which 24 of 44 samples fell below the standard, in most cases because of immaturity rather than of intentional fraud.

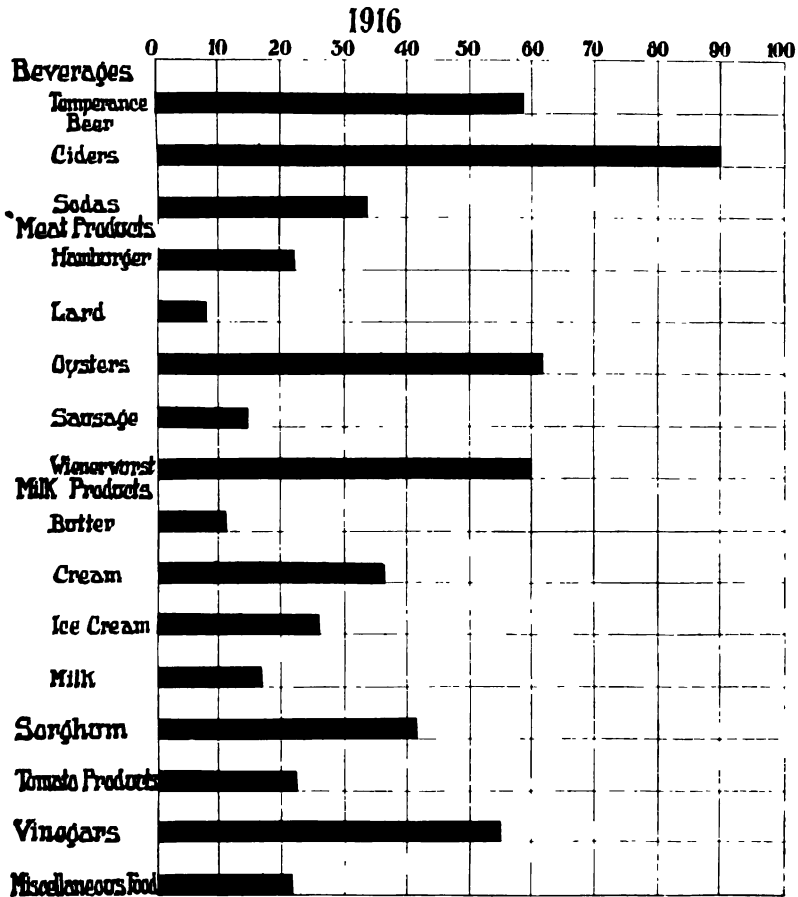
If it were possible or advisable to tabulate the results of analysis of food samples into two classes, one of which would show naturally the farm made food stuffs, and the other the manufactured products gathered from all parts of the world and sold in package form, it would be evident that the adulteration was confined almost entirely to the first class. The bulk of the food supply, which consists of cereals, fruits and vegetables, canned goods, sugar syrups, spices and accessories would show no adulteration and the unsatisfactory samples would be found in the lists of goods produced by the local butcher in his back room and by the farmer who did not know how to work and who had no means of determining whether or not his products were standard. It is a difficult matter for the farmer to determine when his vinegar is matured, how much moisture is present in his butter, whether or not the condiments and spices he uses in the preparation of home-made sausage and meat loaves are pure or loaded with chemicals.

The work of the chemical laboratory would be wrongly directed if it were concerned only with such violations of the law, definite though they may be. Special reference to the various forms of adulteration found in various classes of food will be made under the discussion of such foods in the tables following:

**RESULTS OF ANALYSIS OF FOOD SAMPLES FOR THE YEAR ENDING  
OCTOBER 1, 1915, TO OCTOBER 1, 1916.**

Article.	Legal.	Illegal.	Total.	Per Cent. Adult- eration.
<b>Beverages—</b>				
Beers.....	14	0	14	
Temperance Beers.....	25	23	48	47.9
Cider.....	2	18	20	90.0
Sodas.....	8	4	12	33.3
Wine.....	6		6	
Bread, Gluten.....	2	2	4	50.0
Extracts.....	3		3	
Flour.....	5	4	9	44.5
Grape Fruit.....	7	9	16	56.2
Honey.....	2		2	
Jellies.....	11	1	12	8.3
Maple Syrup.....	8		8	
Sorghum Syrups.....	7		12	41.6
Tomato Products.....	21	6	27	22.2
Vinegars.....	20	24	44	54.5
<b>Meat Products—</b>				
Lard.....	13	1	14	7.1
Oysters.....	8	13	21	62.0
Hamburger.....	125	37	162	22.8
Sausage.....	148	27	175	15.4
Weinerwurst.....	2	3	5	60.0
<b>Milk Products—</b>				
Butter.....	77	10	87	11.6
Cream.....	14	8	22	36.3
Ice Cream.....	80	32	121	26.4
Milk.....	377	75	452	16.6
Milk, Breast.....	22		22	
Milk, Condensed.....	7	6	13	21.7
Oleomargine.....	4		4	
Miscellaneous Food samples.....	39	11	50	22.0
<b>Total.....</b>	<b>1,066</b>	<b>319</b>	<b>1,385</b>	<b>23.1</b>

# PERCENTAGE of ADULTERATION of FOODS ANALYZED in INDIANA



## REPORT FROM THE FOOD LABORATORY.

### DAIRY PRODUCTS.

#### MILK.

Three hundred and seventy-seven samples of milk sent in by the inspectors or health officers conformed to the standards established by law. Seventy-five or 16.6% were listed as illegal. Forty of the 75 samples were classed as illegal because they contained visible dirt. Thirty-two samples contained less than the required 3.25% of butter fat. A number of samples were deliberately watered but others were apparently produced by herds or individual cows bred to produce volume rather than quality.

#### MILKS—ILLEGAL.

Laboratory No.	Manufacturer or Retailer	Per Cent of Fat.	Remarks.
30041	Sent in from Richmond.....	4.7	Small amount visible dirt.
30042	Sent in from Richmond.....	5.7	Small amount visible dirt.
30043	Sent in from Richmond.....	3.0	Low in fat, added water.
30154	Sam Hohenberg, Greensburg.....	3.4	Slightly dirty.
30156	Koldykes Pure Milk, Marion.....	2.7	Low in fat, visible dirt present.
30159	Christ Horstman, Greensburg.....	4.0	Slight amount visible dirt.
30210	J. F. Workman, Kokomo.....	3.3	Small amount visible dirt.
30234	Sent in from Syracuse.....	3.3	Formaldehyde present.
30236	Sent in from Syracuse.....	3.8	Formaldehyde present.
30237	Sent in from Syracuse.....	2.8	Low in fat.
30212	McCarty & Crawford, Martinsville.....	2.9	Low in fat.
30235	Marion Jones, Anderson.....	3.0	Low in butterfat.
30259	F. L. Kreutz, Mishawaka.....	5.3	Visible dirt present.
30279	Vincennes Milk Co., Vincennes.....	2.7	Very dirty.
30341	J. W. Morrow, Madison.....	2.7	Low in fat, visible dirt.
30389	Sent in from Muncie.....	2.0	Low in fat.
30442	H. L. Jemison, Shelbyville.....	2.0	Much visible dirt.
30452	Sent in from Richmond.....	3.4	Small amount visible dirt.
30453	Sent in from Richmond.....	5.2	Small amount visible dirt.
30454	Sent in from Richmond.....	3.9	Small amount visible dirt.
30455	Sent in from Richmond.....	4.1	Small amount visible dirt.
30458	Sent in from Richmond.....	2.0	Low in fat.
30459	Sent in from Richmond.....	2.5	Visible dirt present.
30485	Wm. Duggan, Rushville.....	4.1	Much visible dirt present.
30486	Fred Cochran, Rushville.....	3.4	Much visible dirt present.
30507	A Van de Walle, Mishawaka.....	4.3	Slight amount visible dirt.
30525	J. M. & S. A. Thomas, Laporte.....	3.1	Low in fat.
30528	A. Nowatzke, Michigan City.....	4.0	Slightly dirty.
30558	Sent in from Kokomo.....	2.6	Added water present.
30559	Roy Miller, Shelbyville.....	4.7	Visible dirt present.
30560	Roy Miller, Shelbyville.....	4.2	Much visible dirt present.
30561	H. W. Sampson, Shelbyville.....	3.8	Visible dirt present.
30562	James Shields, Shelbyville.....	4.4	Visible dirt present.
30580	Fremont Davis, Columbus.....	6.1	Small amount visible dirt.
30587	Orval Horning, Columbus.....	4.8	Slight amount visible dirt.
30590	Peter Gross, Syracuse.....	2.6	Low in fat.
30615	Sent in from Terre Haute.....	4.0	Slight amount visible dirt.
30643	Sent in from Terre Haute.....	4.8	Very much visible dirt.
30691	Peter Gross, Syracuse.....	3.0	Low in fat.
30697	Sent in from Terre Haute.....	4.8	Very much visible dirt.
30769	Sent in from Lafayette.....	2.4	Low in fat.
30795	Philbeck Cafe, Terre Haute.....	2.4	Low in fat.
30818	Sent in from Terre Haute.....	3.2	Low in fat.
30819	Sent in from Terre Haute.....	3.8	Visible dirt present.
30820	Sent in from Terre Haute.....	3.2	Low in fat.
30839	Sent in from Indianapolis.....	2.9	Low in fat, added water.

## MILKS—ILLEGAL—Continued.

Laboratory No.	Manufacturer or Retailer.	Per Cent of Fat.	Remarks.
30862	Thos. Shields, Evansville . . . . .	3 2	Low in fat, added water.
30863	Thos. Shields, Evansville . . . . .	2 4	Low in fat, added water.
30889	Boyd Bros., Muncie . . . . .	3 8	Visible dirt present.
30890	Solon Fry, Muncie . . . . .	3 1	Low in fat.
30891	Walter Catron, Muncie . . . . .	2 0	Low in fat, added water.
30892	Walter Catron, Muncie . . . . .	1 0	Low in fat, added water.
30893	G. S. Bair, Marion . . . . .	2 6	Low in fat.
30905	G. B. Deaton, Muncie . . . . .	4 4	Visible dirt present.
30909	E. S. Darter, Marion . . . . .	3 3	Small amount dirt present.
30910	Joe Etters, Marion . . . . .	3 3	Small amount dirt present
30912	L. F. Shively, Terre Haute . . . . .	2 8	Low in fat.
30919	Walter Catron, Muncie . . . . .		Sample very dirty.
30920	Walter Catron, Muncie . . . . .		Sample very dirty.
30921	Walter Catron, Muncie . . . . .		Sample very dirty.
30936	Sent in from Terre Haute . . . . .	3 0	Low in fat, added water.
30939	Sent in from Terre Haute . . . . .	3 0	Low in fat, added water.
30937	Sent in from Terre Haute . . . . .	3 1	Low in fat, added water.
30938	Sent in from Terre Haute . . . . .	3 0	Low in fat.
30959	Henry Hoffman, Anderson . . . . .	3 8	Small amount dirt present.
30960	R. G. Parker, Anderson . . . . .	4 5	Small amount visible dirt.
31014	M. Voglesang & Sons, Rockport . . . . .	4 4	Added water present.
31015	M. Voglesang & Sons, Rockport . . . . .	4 45	Added water present.
31038	I. P. King, Terre Haute . . . . .	2 7	Low in fat.
31040	Gillett Bros., Terre Haute . . . . .	4 3	Much visible dirt present.
31045	A. A. Tripp, North Vernon . . . . .	2 6	Low in fat.
31064	John Swissler, Richmond . . . . .	2 6	Low in fat.
31065	James Pontus, Richmond . . . . .	2 6	Low in fat.
31066	Lula Pontils, Richmond . . . . .		Sample very dirty.
31067	Lou Strathaus, Richmond . . . . .	2 5	Low in fat.

## CONDENSED MILK.

But few samples of condensed milk have been analyzed and then only in response to requests from interested parties. Condensed milk is now made under conditions which insure a uniformity of product and a strict adherence to established standards.

## CONDENSED MILK.

Laboratory No.	Manufacturer or Retailer.	Per Cent of Fat.	Total Solids.	Remarks.
30302	Sheridan Condensed Milk Co., Sheridan . . . . .	9 24	27.69	Legal.
30303	Sheridan Condensed Milk Co., Sheridan . . . . .	9 24	27.22	Legal.
30304	Sheridan Condensed Milk Co., Sheridan . . . . .	9 31	27.00	Legal.
30998	Indiana Condensed Milk Co., Sheridan . . . . .	6 90	26.55	Illegal.
30999	Indiana Condensed Milk Co., Sheridan . . . . .	6 90	26.18	Illegal.
31000	Indiana Condensed Milk Co., Sheridan . . . . .	7 20	25.39	Illegal.
31001	Indiana Condensed Milk Co., Sheridan . . . . .	7 20	26.20	Illegal.
31002	Indiana Condensed Milk Co., Sheridan . . . . .	7 20	26.12	Illegal.
31003	Indiana Condensed Milk Co., Sheridan . . . . .	7 20	26.20	Legal.
31004	Indiana Condensed Milk Co., Sheridan . . . . .	8 70	27.87	Legal.
31005	Indiana Condensed Milk Co., Sheridan . . . . .	8 70	27.70	Legal.
31006	Indiana Condensed Milk Co., Sheridan . . . . .	9 00	27.60	Legal.
31007	Indiana Condensed Milk Co., Sheridan . . . . .	9 30	27.62	Legal.

## BREAST MILK.

The analysis of 22 samples of breast milk is recorded. This work was not done because of any evident violation of the pure



food law, but in the hopes that the data supplied might be of some value to the physician or nurse.

#### BREAST MILK.

Laboratory No.	Sent in by	Per Cent Fat.	Per Cent of Protein N X 6.25	Remarks.
30028	Dr. E. W. Layman, Terre Haute	2.10	1.75	
30029	Dr. H. I. Berger, Indianapolis	4.20	2.03	Sugar 6.05.
30034	Dr. H. I. Berger, Indianapolis	5.90		
30217	Harry Anderson, Indianapolis	3.79	1.35	Carbohydrates 6.5
30219	Dr. L. Maxwell, Indianapolis	3.10	1.47	
30220	Dr. Jack Jones, Indianapolis	2.20	1.75	Carbohydrates 6.6.
30234	Dr. C. L. Rowland, Lafayette	1.60	1.19	
30264	Dr. H. S. Hatch, Madison	2.80	1.36	
30329	Dr. Mable Hirsch, Marion	2.10	.98	
30344	J. P. Weatherspoon, Princeton	1.70	1.05	Carbohydrates 6.2.
30357	Dr. Henchman, Indianapolis	2.60		
30442	H. M. Iblson, Indianapolis	3.30		
30535	Mrs. Robinson, Crawfordsville	1.70	1.12	
30555	Mrs. C. W. Wilson, Indianapolis	4.40	2.54	
30617	Mrs. T. J. Kizer, Indianapolis	7.90	2.45	
30706	Mrs. T. J. Kizer, Indianapolis	7.90	2.45	
30985	C. E. Cogswell, Paoli	1.80	1.08	
31016	Dr. J. H. Morrison, Hartsville	3.10	1.14	
31074	J. L. Hobson, Hartford City	2.65	2.27	
31083	Mrs. Horsley, Indianapolis	1.40	1.36	
31143	E. C. Denny, Milton	3.76	1.29	
31176	G. W. Parrish, Indianapolis	2.50	1.12	

#### BUTTER.

Of the 77 butter samples analyzed but 10 or 11.6% were illegal. In every case the illegal samples contained a slight excess of water. The maximum moisture content recorded is 17.66 percent.

#### BUTTER—LEGAL.

Laboratory No.	Retailer.	Collected.	Butyro 40° C.	Reichert-Meissl Number.	Moisture.
30030	McCready Milk Co.	Indianapolis			10.9
30162	Indiana Ice & Dairy	Anderson			11.70
30163	Alexandria Creamery	Alexandria			11.30
30164	White River Creamery	Muncie			12.65
30165	Western Ohio Creamery	Richmond			13.60
30176	Schlosser Bros.	Plymouth			13.55
30200	George Freese Sons	Napanea	44.5	26.6	
30216	Sent in from	Terre Haute	41.85	2.98	
30233	J. W. Whitlock & Co.	Rising Sun	42.10	29.60	
30244	Sent in from	Jeffersonville	44.6	26.2	
30260	Carter & Sons	Noblesville			15.10
30261	Robert Mock Co.	Noblesville			13.40
30262	A. D. Couden	Noblesville			14.65
30263	George Hayes	Noblesville			14.72
30264	Crystal Springs Co.	Osceola	44.6	27.4	
30330	Schlosser Bros.	Plymouth			13.82
30331	Schlosser Bros.	Plymouth			12.65
30332	Schlosser Bros.	Plymouth			12.15
30333	Schlosser Bros.	Plymouth			14.10
30334	Schlosser Bros.	Plymouth			14.76
30335	Schlosser Bros.	Plymouth			15.30
30336	Schlosser Bros.	Plymouth			13.41
30337	Schlosser Bros.	Plymouth			14.31
30338	Schlosser Bros.	Plymouth			11.92
30339	Schlosser Bros.	Plymouth			12.10

## BUTTER—LEGAL—Continued.

Laboratory No.	Retailer.	Collected	Butyro 40° C.	Reichert-Meissl Number.	Moisture.
30340	Schlosser Bros.	Plymouth.			13.82
30341	Schlosser Bros.	Plymouth.			13.51
30342	Schlosser Bros.	Plymouth.			13.87
30343	Schlosser Bros.	Plymouth.			15.10
30344	Schlosser Bros.	Plymouth.			13.80
30345	Schlosser Bros.	Plymouth.			12.72
30346	Schlosser Bros.	Plymouth.			13.15
30347	Schlosser Bros.	Plymouth.			14.27
30348	Schlosser Bros.	Plymouth.			13.76
30349	Schlosser Bros.	Plymouth.			14.70
30350	Sent in from.	Muncie.	42.7		12.40
30360	Sent in from.	Muncie.	42.7		14.31
30370	Schlosser Bros.	Plymouth.			13.75
30371	Schlosser Bros.	Plymouth.			14.68
30372	Schlosser Bros.	Plymouth.			14.60
30373	Schlosser Bros.	Plymouth.			14.51
30374	Schlosser Bros.	Plymouth.			13.91
30375	Schlosser Bros.	Plymouth.			15.25
30376	Schlosser Bros.	Plymouth.			14.85
30377	Schlosser Bros.	Plymouth.			13.80
30378	Schlosser Bros.	Plymouth.			13.05
30379	Schlosser Bros.	Plymouth.			14.28
30388	Sent in from.	Fort Wayne.	44.2		
30429	Buehler Bros.	Richmond.	44.2	29.8	
30430	Sent in from.	Elkhart.	42.0	29.1	
30538	Sent in from.	Indianapolis.			16.01
30540	Schlosser Bros.	Plymouth.			15.40
30541	Schlosser Bros.	Plymouth.			15.72
30542	Schlosser Bros.	Plymouth.			15.15
30543	Schlosser Bros.	Plymouth.			14.50
30544	Schlosser Bros.	Plymouth.			15.80
30545	Schlosser Bros.	Plymouth.			15.71
30546	Schlosser Bros.	Plymouth.			15.82
30547	Schlosser Bros.	Plymouth.			16.00
30548	Schlosser Bros.	Plymouth.			15.60
30549	Schlosser Bros.	Plymouth.			15.56
30557	Wadley Co.	Terre Haute.			15.10
30593	Sent in from.	Richmond.	41.6	27.6	
30600	Wm. H. Block Company.	Indianapolis.			14.21
30601	Wm. H. Block Company.	Indianapolis.			13.70
30602	Wm. H. Block Company.	Indianapolis.			14.60
30802	Wm. H. Block Company.	Indianapolis.			15.12
30802a	Wm. H. Block Company.	Indianapolis.			14.80
30803	Wm. H. Block Company.	Indianapolis.			14.78
30803a	Wm. H. Block Company.	Indianapolis.			14.49
30847	White River Creamery Co.	Muncie.			14.83
30978	Schlosser Bros.	Plymouth.			15.32
30979	Schlosser Bros.	Plymouth.			16.00
30980	Schlosser Bros.	Plymouth.			15.95
30981	Schlosser Bros.	Plymouth.			15.85
30982	Schlosser Bros.	Plymouth.			15.80
30992	Sent in from.	Elkhart.	43.2	31.35	

## BUTTER—ILLEGAL.

Laboratory No.	Retailer.	Collected.	Butyro 40° C.	Reichert-Meissl Number.	Moisture.
30365	Sent in from.	Elwood.	43.8	27.8	
30536	Sent in from.	Indianapolis.			17.66
30537	Sent in from.	Indianapolis.			16.75
30801	Wm. H. Block Co.	Indianapolis.			16.82
30804	Wm. H. Block Co.	Indianapolis.			16.37
30805	Wm. H. Block Co.	Indianapolis.			16.55
31099	Sent in from.	Indianapolis.	42.0	24.0	
31115	Wm. H. Block Co.	Indianapolis.			16.42

## OLEOMARGARINE—LEGAL.

Laboratory No.	Sent in by	Collected.	Butyro 40° C	Reichert-Meissl Number.	Moisture.
30273	Dr. L. N. Gelsinger.....	Auburn.....	51.9	.....	.....
31173	Dr. Geo S. Bliss.....	Fort Wayne.....	50.5	6.33	7.0
31174	Dr. Geo S. Bliss.....	Fort Wayne.....	52.2	2.68	9.08
31175	Dr. Geo. S. Bliss.....	Fort Wayne.....	50.8	4.18	6.94

## CREAMS.

Of the 22 samples of cream analyzed 8 or 33.6% were listed as illegal. One of these samples contained visible dirt. The other samples were low in butter fat content. The minimum butter fat content found was 14 percent.

## CREAM—LEGAL.

Laboratory No.	Manufacturer or Dealer.	Where Collected.	Per Cent of Fat.	Remarks.
30157	Perry Herring.....	Marion.....	18.0	No visible dirt.
30253	Sylvester Harris.....	Anderson.....	18.0	No visible dirt.
30351	O. E. Bucknell.....	Madison.....	19.0	No visible dirt.
30358	G. Drohammer.....	Madison.....	25.5	No visible dirt.
30549	M. L. Marquette.....	Brooklyn.....	20.0	No visible dirt.
30551	J. C. Wiggan.....	Indianapolis.....	20.0	No visible dirt.
30572	Sent in from.....	Albion.....	35.0	No visible dirt.
30573	Sent in from.....	Albion.....	34.2	No visible dirt.
30780	Sent in from.....	Indianapolis.....	35.0	No visible dirt.
30893	Fred Gibson.....	Marion.....	21.0	No visible dirt.
30937	Wm. H. Block Company.....	Indianapolis.....	18.4	No visible dirt.
30972	Indiana Dairy & Ice Co.....	Anderson.....	24.0	No visible dirt.
31096	Sent in from.....	Richmond.....	20.5	No visible dirt.
31097	Sent in from.....	Richmond.....	20.0	No visible dirt.

## CREAM—ILLEGAL.

Laboratory No.	Manufacturer or Dealer.	Where Collected.	Per Cent of Fat.	Remarks.
30194	Sent in from.....	Indianapolis.....	16.5	Low in fat.
30220	Browder Ice Cream Co.....	Indianapolis.....	15.0	Low in fat.
30237	Robt. J. Cook.....	Anderson.....	14.0	Low in fat.
30431	Wm. H. Block Company.....	Indianapolis.....	17.3	Low in fat.
30781	Sent in from.....	Indianapolis.....	15.5	Low in fat.
30906	Geo P. Griffith.....	Muncie.....	23.2	Visible dirt.
30907	R. F. Koldyke.....	Marion.....	17.0	Low in fat.
30911	Carey & Cravens.....	Marion.....	16.5	Low in fat.

## ICE CREAM

Of the 121 samples analyzed 89 were of full legal strength. Thirty-two were lower in butter fat content. The minimum butter fat content reported was 1.8%. Most of the low samples ran above 6% and in many cases the departure from normal was evidently due to improper formulas rather than to a definite desire to defraud.

## ICE CREAM—LEGAL.

Laboratory No.	Manufacturer or Retailer.	Where Collected.	Per Cent. of Fat.
30172	Sent in from . . . . .	Terre Haute . . . . .	8.0
30209	Zaharago Bros. . . . .	Columbus . . . . .	8.0
30215	Geiger & Company . . . . .	Indianapolis . . . . .	9.2
30227	Wm. H. Block Co. . . . .	Indianapolis . . . . .	11.0
30228	Wm. H. Block Co. . . . .	Indianapolis . . . . .	11.0
30229	Wm. H. Block Co. . . . .	Indianapolis . . . . .	13.0
30252	L. Geiger . . . . .	Indianapolis . . . . .	12.8
30252	L. Geiger . . . . .	Indianapolis . . . . .	13.4
30254	L. Geiger . . . . .	Indianapolis . . . . .	9.4
30270	Ballard Ice Cream Co. . . . .	Indianapolis . . . . .	11.4
30339	Geiger Candy Co. . . . .	Indianapolis . . . . .	16.5
30340	Geiger Candy Co. . . . .	Indianapolis . . . . .	13.5
30364	Wm. H. Block Co. . . . .	Indianapolis . . . . .	12.0
30366	Wm. H. Block Co. . . . .	Indianapolis . . . . .	9.0
30496	Wm. H. Block Co. . . . .	Indianapolis . . . . .	9.6
30497	Wm. H. Block Co. . . . .	Indianapolis . . . . .	9.6
30498	Wm. H. Block Co. . . . .	Indianapolis . . . . .	13.0
30499	D. Condos . . . . .	Mishawaka . . . . .	13.4
30500	M. E. Bowes . . . . .	Laporte . . . . .	9.6
30501	Fenick and Son . . . . .	Laporte . . . . .	10.0
30502	T. C. Sage . . . . .	Laporte . . . . .	10.4
30503	P. Blanos . . . . .	Laporte . . . . .	11.0
30504	J. E. Moshos . . . . .	Laporte . . . . .	14.6
30527	C. E. Woodruff . . . . .	Topeka . . . . .	8.2
30538	C. E. Woodruff . . . . .	Topeka . . . . .	11.6
30588	Badger Dairy Co. . . . .	Columbus . . . . .	11.6
30594	Coca Cola Bottling Works . . . . .	Columbus . . . . .	8.0
30595	Coca Cola Bottling Works . . . . .	Columbus . . . . .	8.1
30597	Coca Cola Bottling Works . . . . .	Columbus . . . . .	8.4
30598	Coca Cola Bottling Works . . . . .	Columbus . . . . .	8.0
30645	Sent in from . . . . .	Terre Haute . . . . .	13.2
30649	Sent in from . . . . .	Terre Haute . . . . .	8.2
30650	Sent in from . . . . .	Terre Haute . . . . .	19.0
30651	Sent in from . . . . .	Terre Haute . . . . .	8.0
30652	Sent in from . . . . .	Terre Haute . . . . .	10.4
30719	C. E. Woodruff . . . . .	Topeka . . . . .	9.6
30797	Murray and Lucian . . . . .	Terre Haute . . . . .	8.8
30798	W. J. Smith . . . . .	Terre Haute . . . . .	8.4
30799	Clif. B. Caldwell . . . . .	Terre Haute . . . . .	8.0
30800	Olympia Ice Cream Co. . . . .	Terre Haute . . . . .	8.4
30828	Sanitary Ice Cream Co. . . . .	Seymour . . . . .	8.0
30829	Seymour Ice Cream Co. . . . .	Seymour . . . . .	8.8
30830	Sanitary Ice Cream Co. . . . .	Seymour . . . . .	8.2
30831	Sanitary Ice Cream Co. . . . .	Seymour . . . . .	8.0
30839	Wm. H. Block Co. . . . .	Indianapolis . . . . .	8.6
30840	Wm. H. Block Co. . . . .	Indianapolis . . . . .	8.6
30840a	Wm. H. Block Co. . . . .	Indianapolis . . . . .	12.2
30841	Wm. H. Block Co. . . . .	Indianapolis . . . . .	10.8
30842	M. Jensen . . . . .	Clay City . . . . .	9.8
30842a	Wm. H. Block Co. . . . .	Indianapolis . . . . .	8.0
30843	C. E. Woodruff . . . . .	Topeka . . . . .	9.2
30884	C. E. Woodruff . . . . .	Topeka . . . . .	8.0
30891	Charles Fields, Ballard & Co. . . . .	Indianapolis . . . . .	12.0
30892	Ballard Ice Cream Co. . . . .	Indianapolis . . . . .	15.0
30893	Ballard Ice Cream Co. . . . .	Indianapolis . . . . .	10.2
30894	Ballard Ice Cream Co. . . . .	Indianapolis . . . . .	10.0
30895	Ballard Ice Cream Co. . . . .	Indianapolis . . . . .	14.0
30913	H. D. and G. Robinson . . . . .	Richmond . . . . .	10.8
30930	J. E. Bender . . . . .	Richmond . . . . .	9.2
30941	Kutche and Adams . . . . .	Richmond . . . . .	12.5
30943	C. H. Finny . . . . .	Richmond . . . . .	10.0
30944	C. F. Price & Sons . . . . .	Richmond . . . . .	12.8
30945	Howard Hoover . . . . .	Richmond . . . . .	9.0
30946	Sanitary Ice Cream Co. . . . .	Richmond . . . . .	9.4
30947	Ed. Schwegman . . . . .	Richmond . . . . .	12.4
30993	C. E. Woodruff . . . . .	Topeka . . . . .	9.6
31025	Clarence Finney . . . . .	Richmond . . . . .	9.4
31026	C. F. Price & Sons . . . . .	Richmond . . . . .	11.6
31028	Howard Townsend . . . . .	Richmond . . . . .	8.0
31029	Ed. Schwegman . . . . .	Richmond . . . . .	10.0
31030	Howard Hoover . . . . .	Richmond . . . . .	10.2
31031	I. E. Bender . . . . .	Richmond . . . . .	9.0
31033	E. M. W. Robinson . . . . .	Richmond . . . . .	8.6
31034	Howard Hoover . . . . .	Richmond . . . . .	11.4
31043	Zaharago Bros. . . . .	Columbus . . . . .	12.4

## ICE CREAM—LEGAL—Continued.

Laboratory No.	Manufacturer or Retailer.	Where Collected.	Per Cent. Fat.
31044	Badger Dairy Co.	Columbus	8.4
31048	Seymour Ice Cream Co.	Seymour	10.2
31054	Hoover Mfg. Co.	Richmond	10.6
31073	C. Downey	Francisco	12.0
31078	C. Downey	Francisco	8.8
31094	E. A. McLain	Columbus	8.4
31095	C. E. Woodruff	Topeka	...
31117	Sent in from	Richmond	9.4
31118	Sent in from	Richmond	14.0
31119	Sent in from	Richmond	14.0
31120	Sent in from	Richmond	9.0
31121	Sent in from	Richmond	10.8
31122	Sent in from	Richmond	8.7
31123	Sent in from	Richmond	9.6
31124	Sent in from	Richmond	12.0
31125	Sent in from	Richmond	13.6
31126	Sent in from	Richmond	8.6
31127	Sent in from	Richmond	14.0

## ICE CREAM—ILLEGAL.

Laboratory No.	Manufacturer or Retailer.	Where Collected.	Per Cent. of Fat.	Remarks.
30206	A. E. Schumaker	Columbus	4.5	Low in fat.
30207	A. E. Schumaker	Columbus	6.0	Low in fat.
30208	A. E. Schumaker	Columbus	6.0	Low in fat.
30218	Sent in from	Topeka	5.6	Low in fat.
30221	Ballard Ice Cream Co.	Indianapolis	6.0	Low in fat.
30235	Sullivan Ice Cream Co.	Sullivan	5.8	Low in fat.
30268	Velvet Ice Cream Co.	Indianapolis	7.2	Low in fat.
30269	A. E. Schumaker	Columbus	7.2	Low in fat.
30494	Geiger Candy Co.	Indianapolis	4.4	Low in fat.
30495	Geiger Candy Co.	Indianapolis	5.2	Low in fat.
30505	F. W. Burn	Mishawaka	7.8	Low in fat.
30506	Pagin Sanitary Dairy	Laporte	7.6	Low in fat.
30596	Coca Cola Bottling Works	Columbus	7.2	Low in fat.
30646	Sent in from	Terre Haute	7.8	Low in fat.
30647	Sent in from	Terre Haute	6.0	Low in fat.
30648	Sent in from	Terre Haute	3.2	Low in fat.
30663	Sent in from	Fort Wayne	5.4	Low in fat.
30766	Indianapolis Creamery Co.	Indianapolis	6.4	Low in fat.
30826	Gallamore Ice Cream Co.	Seymour	6.6	Low in fat.
30827	Seymour Ice Cream Co.	Seymour	6.0	Low in fat.
30838	Gallamore Ice Cream Co.	Seymour	7.0	Low in fat.
30940	Clem Thistlewaite	Richmond	6.0	Low in fat.
30942	Howard Townsend	Richmond	6.0	Low in fat.
31027	Clem Thistlewaite	Richmond	7.2	Low in fat.
31032	Sanitary Ice Cream Co.	Richmond	5.2	Low in fat.
31046	John Cosmas	North Vernon	1.8	Low in fat.
31047	John Cosmas	North Vernon	5.6	Low in fat.
31069	Gallamore Ice Cream Co.	Seymour	6.0	Low in fat.
31070	Puritan Ice Cream Co.	Columbus	6.2	Low in fat.
31071	Sanitary Ice Cream Co.	Seymour	6.8	Low in fat.
31150	Sanitary Ice Cream Co.	Seymour	6.4	Low in fat.
31158	Gallamore Ice Cream Co.	Seymour	7.2	Low in fat.

## BEVERAGES.

## BEER.

Fourteen samples of beer were analyzed during the year. Most of these samples were sent in by peace officers for the purpose of determining whether or not the liquor laws were violated by its sale.

## BEER.

Laboratory No.	Manufacturer or Retailer.	Where Collected.	Immersion Reading.	Per Cent. Alcohol by Volume.
30469	Sent in from.....	Goshen.....	19.2	4.41
30716	Sent in from.....	Peru.....	18.7	4.36
30717	Sent in from.....	Peru.....	18.6	4.32
30718	Sent in from.....	Indianapolis.....		1.08
30880	V. E. Trittipo.....	Fishers.....	17.4	3.17
30932	E. P. Carr.....	English.....		4.46
30933	Sent in from.....	New Albany.....		4.39
30934	E. P. Carr.....	English.....		4.46
30935	E. P. Carr.....	English.....		4.01
30974	E. P. Carr.....	English.....		4.46
30975	E. P. Carr.....	English.....		4.39
30976	E. P. Carr.....	English.....		4.46
30977	E. P. Carr.....	English.....		4.01
31130	Sanford Murphy.....	New Washington.....	17.5	4.33

## TEMPERANCE BEER.

Forty-eight temperance beers were examined, 23 of which were illegal in every case save one because the alcohol content was above the limits set by law for a dry or temperance beverage. In most cases the alcohol content ran above three percent, showing not an illegal temperance beer but a genuine beer illegally labeled. Temperance beers bearing the label of the Pabst Brewing Company, for instance, showed an alcohol content of 1.82 and 1.70 percent. If the temperance beers classed as illegal had been sold as beers, but seven would be found in the illegal class.

## TEMPERANCE BEERS—LEGAL.

Laboratory No.	Article.	Manufacturer or Dealer.	Immersion Reading.	Per Cent. Alcohol by Volume.
30187	Temperance Beer..	R. H. Brown, Monon.....	15.5	.44
30198	Ambrosia.....	Robert Renitz, Noblesville.....	13.4	.18
30252	Temperance Beer..	Bridges and Son, Crothersville..	14.5	.50
30285	Alpha.....	C. E. Glass, Greentown.....	13.3	.09
30365	Temperance Beer..	Princeton Bottling Works, Princeton.....	13.9	.00
30368	Temperance Beer..	C. A. Hunerwadel, Lafayette.....	17.4	.34
30630	Ambrosia.....	Griggs and Company, Paoli.....	15.1	.38
30723	Temperance Beer..	C. W. Mumaw, Warsaw.....	14.0	.09
39763	Temperance Beer..	Brant and Beebe, Warsaw.....	15.0	.52
30765	Temperance Beer..	Sent in from Aurora.....	15.0	.52
30779	Temperance Beer..	Sent in from Indianapolis.....	13.8	.31
30849	Temperance Beer..	Sent in from Indianapolis.....	15.0	.52
30850	Temperance Beer..	Mr. R. A. Martin, Bourbon.....	13.8	.11
30851	Temperance Beer..	Brant and Beebe, Warsaw.....	14.3	.33
30923	Buck.....	National Beverage Co., Chicago, Illinois.....	15.5	.53
30924	Ambrosia.....	M. E. Swigart, Fortville.....		.00
30932	Temperance Beer..	Brant and Beebe, Warsaw.....	14.5	.21
30933	Temperance Beer..	J. K. Stine, Morocco.....	14.5	.21
31022	Temperance Beer..	Warren Bottling Works, Warren.....	15.0	.52
31103	Temperance Beer..	Mr. Meredith, Culver.....	13.9	.40
31104	Temperance Beer..	Mr. Meredith, Culver.....	13.7	.23
31105	Temperance Beer..	Mr. Meredith, Culver.....	13.8	.31
31106	Temperance Beer..	Mr. Meredith, Culver.....	13.7	.23
31107	Temperance Beer..	Mr. Meredith, Culver.....	13.7	.23
31129	Temperance Beer..	Warren Bottling Works, Warren.....	15.5	.45

## TEMPERANCE BEER—ILLEGAL.

Laboratory No.	Article.	Manufacturer or Dealer.	Immersion Reading.	Per Cent. Alcohol by Volume.	Remarks.
29689	Temperance Beer..	Pabst Brewing Co., Milwaukee	17.0	1.70	High in alcohol.
29690	Temperance Beer..	Pabst Brewing Co., Milwaukee	17.15	1.82	High in alcohol.
30140	Temperance Beer..	R. H. Brown, Monon.....	22.0	5.52	High in alcohol.
30150	Temperance Beer..	R. H. Brown, Monon.....	22.0	5.52	High in alcohol.
30186	Temperance Beer..	R. H. Brown, Monon.....	21.5	5.15	High in alcohol.
30188	Temperance Beer..	R. H. Brown, Monon.....	20.5	4.41	High in alcohol.
30189	Temperance Beer..	R. H. Brown, Monon.....	21.5	5.15	High in alcohol.
30190	Temperance Beer..	R. H. Brown, Monon.....	21.0	4.80	High in alcohol.
30203	Ambrosia.....	C. R. Mills, Campbellsburg	17.1	3.14	High in alcohol.
30204	Maltena.....	Sent in from Campbellsburg	18.3	4.03	High in alcohol.
30205	Ambrosia.....	Sent in from Campbellsburg	17.6	3.51	High in alcohol.
30346	Temperance Beer..	Oscar Lanphar, Princeton.....	17.6	3.12	High in alcohol.
30622	Mead.....	Geo. W. Childers, Paoli.....	16.0	1.36	High in alcohol.
30715	Temperance Beer..	R. Fritz & Son, Fairmount.....	13.9	.62	High in alcohol.
30731	Temperance Beer..	Sent in from Aurora.....	15.3	.77	High in alcohol.
30732	Temperance Beer..	Sent in from Aurora.....	15.3	.77	High in alcohol.
30778	Temperance Beer..	C. E. Woodruff, Topeka.....	14.1	.16	Mishbranded.
31023	Temperance Beer..	Warren Bottling Works, Warren	15.35	.77	High in alcohol.
31075	Bevo.....	Sent in from Marion.....	15.8	.68	High in alcohol.
31128	Temperance Beer..	J. D. Hussey, Princeton.....	16.0	.89	High in alcohol.
31212	Temperance Beer..	Sent in from Indianapolis...	18.0	3.81	High in alcohol.
31213	Temperance Beer..	Sent in from Indianapolis...	18.0	3.81	High in alcohol.

## CIDER.

Twenty samples of cider were analyzed. Two were listed as legal and 18 as illegal. Eleven were so listed because their alcohol content was far above that allowable in cider and unfermented fruit juice. Two samples were heavily watered, 4 were artificial and one contained alum. The alcohol content ranged from 1.85 to 9.83 percent.

## CIDER—LEGAL.

Laboratory No.	Manufacturer or Retailer.	Kind.	Preservative.	Remarks.
30367	E. H. Snyder, Indianapolis.....	Apple....	None.....	Legal.
31098	Sent in from Richmond.....	Apple....	None.....	Legal.

## CIDER—ILLEGAL.

Laboratory No.	Manufacturer or Retailer.	Preservatives.	Per Cent of Alcohol.	Remarks.
30195	Sent in from Markleville.....	None.....	5.92	High in alcohol.
30217	Sent in from Elkhart.....	None.....		Heavily watered.
30250	Fred Baxter, Indianapolis.....	None.....		Alum present.
30254	S. J. Brown, Rochester.....	None.....	5.10	
30434	A. H. Felker, Lebanon.....	None.....	5.49	High in alcohol.
30435	A. H. Felker, Lebanon.....	None.....	9.83	High in alcohol.
30439	A. H. Felker, Lebanon.....	None.....	8.04	High in alcohol.
30440	A. H. Felker, Lebanon.....	None.....	1.85	High in alcohol.
30713	Sent in from Bluffton.....	None.....	4.36	High in alcohol.
30762	Sent in from Kokomo.....	None.....	7.73	High in alcohol.
30764	Dean and Spivey, Bluffton.....	None.....	5.80	High in alcohol.
30824	Elmer Merilees, Leavenworth.....	None.....	9.35	High in alcohol.
30894	M. D. Read, Idaville.....	None.....	7.31	High in alcohol.
31132	John Smith, Indianapolis.....	None.....		Artificial.
31133	Dick Crowe, Indianapolis.....	None.....		Artificial.
31134	Ellen Burns, Indianapolis.....	None.....		Artificial.
31135	A. D. Littler, Indianapolis.....	None.....		Artificial.
31136	Louis Houk, Hoagland.....	None.....	.84	Heavily watered.

## WINE.

In order to determine the character of several low grade wines they were analyzed by the side of wines of similar character and standard quality. Although the price paid for the wines varied greatly, the chemical analysis did not show a marked difference in composition.

## WINES—LEGAL.

Kind	Port.	Port.	Sherry.	Sherry.	Anglica.	Anglica.
Laboratory Number.....	10561B	10562B	10563B	10564B	10565B	10566B
Specific Gravity at 20°C.....	1.0201	1.0291	.9880	.9917	1.0317	1.0259
Alcohol by Volume.....	20.09	13.47	18.99	21.49	22.38	19.60
Alcohol by Weight.....	16.35	10.58	15.43	17.51	18.25	15.94
Immersion at 22° C.....	43.2	32.4	41.4	45.5	46.5	43.2
Glycerol.....	0.888	0.7119	0.5929	0.6343	0.7850	0.542
Glycerol-Alcohol Ratio.....	6.04:100	6.54:100	3.84:100	3.62:100	4.30:100	3.40:100
Extract.....	12.519	12.7310	3.422	4.8470	15.9780	12.1480
Ash.....	0.414	0.2030	0.2670	0.3120	0.3980	0.4550
Ash Extract Ratio.....	1:30.5	1:62.7	1:12.81	1:15.53	1:40.14	1:28.9
Total Acids.....	1.0010	0.8640	0.7020	0.9000	0.7740	0.5220
Volatile Acids.....	0.1032	0.0912	0.0792	0.1344	0.1656	0.0744
Fixed Acids.....	0.8720	0.7500	0.6030	0.7320	0.5670	0.4290
Tartaric Acid.....	0.0225	0.0450	0.0337	0.0192	0.02025	0.0315
Reducing Sugars Before Inversion.....	8.184	9.352	1.1440	2.432	11.240	
Reducing Sugars After Inversion.....	9.000	9.992	2.0720	2.584	12.008	6.7120
Chlorides as Sodium Chloride.....	0.0170	0.0140	0.0110	0.0095	0.0070	0.0100
Sulphurous Acid.....	0.0146		0.0031	0.0064	0.0087	0.0107
Proteids.....	0.8050	0.4550	0.2800	0.2800	0.2800	0.4900

## EXTRACTS.

Laboratory No.	Kind.	Manufacturer or Retailer.	Remarks.
30419	Lemon.....	Boston Big Stores, Marion....	Properly labeled.
30424	Vanilla.....	Boston Big Stores, Marion....	Properly labeled.
30922	Lemon.....	L. E. Carter, Geneva.....	Properly labeled.



## FLOUR.

Laboratory No.	Consignee.	Kind.	Remarks.
30230	Wallace E. Miller, Greentown.	Wheat.....	No foreign starch present.
30388	Sent in from Indianapolis.	Buckwheat...	Small amount wheat flour present.
30447	George Cassel, Angola.	Buckwheat...	Trace wheat starch present.
30741	E. Huddleston, Burlington.	Wheat.....	No mould spores present.
30806	Jos. Brudi & Co., New Haven.	Mixed.....	Legal.
30960	M. T. Niman, Indianapolis.	Gluten.....	Nitrogen 2.24: Protein 14.0.
30973	Sent in from Indianapolis.	Wheat.....	Sample contained sand.
30989	Sent in from Indianapolis.	Gluten .....	Not a gluten flour.
31172	M. E. Lawrence, Warsaw.	Wheat.....	No corn starch present.

## GLUTEN BREAD.

Laboratory No.	Sent in from.	Moisture.	Protein on Dry Basis.	Remarks.
30589	Sponsel's Bakery, Indianapolis	40.1	57.6	Not a gluten bread.
30990	Sent in from Indianapolis.			Legal.
31019	Sent in from Indianapolis.	33.7	34.35	Legal.
31020	Sent in from Indianapolis.	43.3	18.98	Not a gluten bread.

## GRAPE FRUIT.

In years past grape fruit has been shipped to Indiana long before it was matured and fit for consumption. In order to determine the character of green grape fruit several samples were analyzed. The results of the analysis are shown in the following table.

## GRAPE FRUIT—LEGAL.

Laboratory No.	Manufacturer or Dealer.	Acidity.	Total Solids.	Ratio.
30247	C. L. Deltz, Indianapolis.	1.34	9.030	1 to 6.8.
30267	J. M. Pinto & Co., Indianapolis.	1.15	9.695	1 to 8.4.
30271	Sabira Schor, Indianapolis.	.56	10.655	1 to 8.9.
30493	Block and Co., Indianapolis.		10.725	
30813	Sent in from Indianapolis.	2.46	9.495	1 to 7.52.
30815	Costro Fruit Co., Porta Rica.	1.28	9.780	1 to 7.64.
30817	Sent in from Indianapolis.	1.23	9.290	1 to 7.55.

## GRAPE FRUIT—ILLEGAL.

Laboratory No.	Manufacturer or Dealer.	Acidity.	Total Solids.	Ratio.
30266	C. W. Chewning, Indianapolis .....	1.868	9.020	1 to 4.83.
30266a	C. W. Chewning, Indianapolis .....	1.638	7.735	1 to 4.74.
30266d	C. W. Chewning, Indianapolis .....	1.907	9.145	1 to 4.79.
30266c	C. W. Chewning, Indianapolis .....	1.651	7.920	1 to 4.79.
30268	Vandersaar Co., Indianapolis .....	1.54	9.805	1 to 6.35.
30269	Geo. Hitz & Co., Indianapolis .....	1.84	11.675	1 to 5.93.
30270	Keach Commission House, Indianapolis .....	1.68	9.795	1 to 5.93.
30814	May Raymond, Indianapolis .....	1.91	10.795	1 to 5.66.
30816	Schideler Commission House, Indianapolis .....	1.43	8.955	1 to 6.27.

## HONEY.

Laboratory No.	Where Collected.	Polarization.		Per Cent. Sucrose.	Total Solids.	Ash.	Remarks.
		Direct	Invert				
30443	Columbus .....	-12.0	-19.8	5.99	80.17	.176	Legal.
30938	Indianapolis .....	-20.0	-21.12	.84	75.89	.15	Legal.

## JELLIES AND JAMS.

Laboratory No.	Kind.	Manufacturer.	Coloring.	Preservatives.
30166	Raspberry Jelly .....	E. F. Monn & Son, Indianapolis .....	None .....	None.
30167	Strawberry Jam .....	E. F. Monn & Son, Indianapolis .....	None .....	Benzoate.
30415	Quince Jelly .....	Vera Biscomb, Marion .....	None .....	None.
30416	Orange Marmalade .....	Vera Biscomb, Marion .....	None .....	None.
30417	Grape Jelly .....	Vera Biscomb, Marion .....	None .....	None.
30422	Grape Jelly .....	Boston Big Store, Marion .....	None .....	None.
30444	Apple Butter .....	Sent in from Muncie .....	None .....	None.
30454	Apple Butter .....	Stephen Kuth, Richmond .....	None .....	None.
30560	Apple Jelly .....	The Crowley Co., Vincennes .....	None .....	None.
30561	Strawberry Jam .....	The Crowley Co., Vincennes .....	None .....	None.
30929	Apple Butter .....	Sent in from Bloomington .....	None .....	None.
31024	Strawberry Jam .....	Cruikshank Bros., Indianapolis .....	None .....	None.

## MAPLE SYRUP—LEGAL.

Laboratory No.	Manufacturer or Retailer.	Polarization		Su-crose.	Total Ash.	Alkalinity of Ash.		Moisture
		Direct.	Invert.			Sol-uble.	Insol-uble.	
30621	Sent in from Muncie .....	+65.0	-20.02	64.4	.50	.29	.28	33.76
30698	Sent in from Muncie .....	+65.0	-20.02	64.4	.50	.29	.28	33.76
30201	Sent in from Odon .....	+63.2	-17.38	62.0	.89	.48	.41	35.00
30272	Sent in from Kingman .....	+53.0	-22.00	57.7	.79	.36	.43	34.88
30438	Sent in from Attica .....	+65.0	-20.9	64.2	.60	.34	.26	33.00
30461	John F. Givan, Moores Hill .....	+63.0	-14.3	58.26	.80	.49	.31	30.60
30464	Sent in from Indianapolis .....	+68.6	-18.04	65.31	.63	.41	.22	...
30949	J. H. Brewster, Newcastle, Pa. ....	+52.6	-13.86	50.4	1.10	.73	.37	29.91

## MEAT PRODUCTS.

## HAMBURGER.

One hundred and sixty-two samples of hamburger steak were examined of which 37 or 22.8% were listed as illegal, in every case save two because of the presence of sulphites. Two samples were adulterated with starch, a rather unusual adulterant of hamburger steak.

## HAMBURGER—LEGAL.

Laboratory No.	Manufacturer or Retailer.	Starch.	Borax.	Sulphites.
30013	Edw. Zahrt, Laporte.	None.	None.	None.
30014	Edw. Zahrt, Laporte.	None.	None.	None.
30015	T. Tittle, Laporte.	None.	None.	None.
30016	F. W. Steigley, Laporte.	None.	None.	None.
30017	F. W. Steigley, Laporte.	None.	None.	None.
30018	H. C. Tanke, Laporte.	None.	None.	None.
30019	G. S. Grover, Laporte.	None.	None.	None.
30020	Buehler Bros., Michigan City.	None.	None.	None.
30021	W. E. Smith, Michigan City.	None.	None.	None.
30144	Horn Bros., Valparaiso.	None.	None.	None.
30146	Joe Tittle, Valparaiso.	None.	None.	None.
30150	Tittle Bros., Gary.	None.	None.	None.
30199	Kelsie and Son, Markle.	None.	None.	None.
30225	Arthur Gagnon, Goodland.	None.	None.	None.
30288	C. F. Moyer, Elkhart.	None.	None.	None.
30290	Buehler Bros., Elkhart.	None.	None.	None.
30293	F. C. Waterman, Elkhart.	None.	None.	None.
30294	Shick Bros., Elkhart.	None.	None.	None.
30296	Reim & Longley, Elkhart.	None.	None.	None.
30297	Robbins & Swinehart, Elkhart.	None.	None.	None.
30299	E. Ruch, Elkhart.	None.	None.	None.
30405	J. E. Hays, Muncie.	None.	None.	None.
30413	Buehler Bros., Muncie.	None.	None.	None.
30417	Peter Goebel, Muncie.	None.	None.	None.
30428	Sent in from Michigan City.	None.	None.	None.
30430	W. Miller, Michigan City.	None.	None.	None.
30442	Poe and Brunst, Ladoga.	None.	None.	None.
30444	Shaw Bros. & Banister, Crawfordsville.	None.	None.	None.
30447	B. F. Stout, Crawfordsville.	None.	None.	None.
30449	Hack Bros., Crawfordsville.	None.	None.	None.
30451	M. L. Gleason, Crawfordsville.	None.	None.	None.
30456	F. A. Scheldler, Richmond.	None.	None.	None.
30457	Buehler Bros., Richmond.	None.	None.	None.
30465	Thos. Sohl, Noblesville.	None.	None.	None.
30465a	A. J. Street, Marion.	None.	None.	None.
30470	C. F. Barney, Marion.	None.	None.	None.
30471	Swayzee Market, Marion.	None.	None.	None.
30474	Buehler Bros., Marion.	None.	None.	None.
30476	E. V. Barney, Marion.	None.	None.	None.
30482	O. J. Strance, Hartford City.	None.	None.	None.
30483	Chas. Ritter, Hartford City.	None.	None.	None.
30485	Jap Poor, Hartford City.	None.	None.	None.
30488	Millner Provision Co., Frankfort.	None.	None.	None.
30489	Cooperative Co., Fort Wayne.	None.	None.	None.
30490	Karns Bros., Fort Wayne.	None.	None.	None.
30490a	A. E. Louks, Frankfort.	None.	None.	None.
30491	Rosenthal & Lueuth, Zionsville.	None.	None.	None.
30502	Stoody and Zwerner, Clinton.	None.	None.	None.
30509	S. J. Bressett, Terre Haute.	None.	None.	None.
30512	B. C. Baester, Terre Haute.	None.	None.	None.
30513	Oakley's, Terre Haute.	None.	None.	None.
30515	Daisie Valentine, Terre Haute.	None.	None.	None.
30517	L. C. Kistler, Mishawaka.	None.	None.	None.
30519	F. Zimmerman, Mishawaka.	None.	None.	None.
30521	Woodka Bros., Mishawaka.	None.	None.	None.
30523	Fred Weber, Mishawaka.	None.	None.	None.
30527	The Fair, Goshen.	None.	None.	None.
30529	M. Shookman, Goshen.	None.	None.	None.
30531	J. A. Lower, Goshen.	None.	None.	None.

## HAMBURGER—LEGAL—Continued.

Laboratory No.	Manufacturer or Retailer.	Starch.	Borax.	Sulphites.
30533	A. W. Jacobs, Goshen	None	None	None
30554	Chas. L. Wood, Kokomo	None	None	None
30559	The Crowley Co., Vincennes	None	None	None
30564	Harry Zink, Monticello	None	None	None
30567	E. Bell & Son, Kokomo	None	None	None
30570	Dowdell & Baker, Kokomo	None	None	None
30572	Williams Bros., Kokomo	None	None	None
30574	C. A. Malaby, Kokomo	None	None	None
30577	Pierce and Son, Kokomo	None	None	None
30577a	Chicago Meat Market, Terre Haute	None	None	None
30579	C. Cain, Monticello	None	None	None
30581	B. F. Harrison, Clinton	None	None	None
30582	Frazier & Jacks, Monticello	None	None	None
30595	Bazley Meat Market, Lafayette	None	None	None
30605	Abe Stern, Logansport	None	None	None
30609	F. W. Kinney, Logansport	None	None	None
30633	Keller and Britzman, Hartford City	None	None	None
30634	J. D. Bain, Hartford City	None	None	None
30636	Funey Bros., Plymouth	None	None	None
30638	Pesch Bros., Plymouth	None	None	None
30641	C. F. Taylor, Rochester	None	None	None
30642	A. W. Smith, Rochester	None	None	None
30660	R. H. Sandwein, Richmond	None	None	None
30661	Chas. Haller, Richmond	None	None	None
30665	Lautzhizer, North Manchester	None	None	None
30666	Wanderly & Keefe, N. Manchester	None	None	None
30685	W. A. Schellert, Dunkirk	None	None	None
30686	Keller & Britzman, Hartford City	None	None	None
30687	J. D. Bain, Hartford City	None	None	None
30689	Funey Bros., Plymouth	None	None	None
30691	Pesch Bros., Plymouth	None	None	None
30693	A. W. Smith, Rochester	None	None	None
30696	C. F. Taylor, Rochester	None	None	None
30707	Buehier Bros., Richmond	None	None	None
30740	Sent in from Mishawaka	None	None	None
30763	Jas. Pap, Richmond	None	None	None
30843	Leikauf Packing Co., Fort Wayne	None	None	None
30846	C. H. Michel, Fort Wayne	None	None	None
30849	Henry Hoffman, Fort Wayne	None	None	None
30850	Herman Scheele, Fort Wayne	None	None	None
30851	Dudenhaefer Bros., Fort Wayne	None	None	None
30852	George Bender, Fort Wayne	None	None	None
30853	H. Grosh & Son, Fort Wayne	None	None	None
30854	Gordon & Middleton, Fort Wayne	None	None	None
30856	Holland Sisslanc, Fort Wayne	None	None	None
30858	Henry Rinewald, Fort Wayne	None	None	None
30859	F. Kappenhafer, Fort Wayne	None	None	None
30860	Wilkins Bros., Fort Wayne	None	None	None
30884	W. J. Doell, Huntington	None	None	None
30885	Chas. Middleton, Huntington	None	None	None
30887	L. A. Ertzinger, Huntington	None	None	None
30888	Nicholas Linderuth, Huntington	None	None	None
30890	Nicholas Linderuth, Huntington	None	None	None
30914	E. O. Fecker, Indianapolis	None	None	None
30917	Kate Hamill, Indianapolis	None	None	None
30919	John Schisla, Indianapolis	None	None	None
30922	H. G. Arnold, Indianapolis	None	None	None
30923	J. E. & E. F. Overman, Indianapolis	None	None	None
30925	Frank Overman, Indianapolis	None	None	None
30950	Paul Brandlein, Indianapolis	None	None	None
30951	H. R. Matzke, Indianapolis	None	None	None
30953	Joe Fecker, Indianapolis	None	None	None
30956	F. Wurster, Indianapolis	None	None	None
30957	G. Merklin, Indianapolis	None	None	None
30958	F. W. Wittendorfer, Indianapolis	None	None	None
30964	Swartz & Baldorf, Auburn	None	None	None

## HAMBURGER—ILLEGAL.

Laboratory No.	Manufacturer or Retailer.	Starch.	Borax.	Sulphites.
30012	Cash Meat Market, Chesterton.	None.	None.	.085
30148	Independent Market, E. Chicago	None.	None.	.070
30149	Diamond & Co., Gary.	None.	None.	.034
30222	E. E. Clark, Garrett.	None.	None.	Present.
30224	Ross & Hays, Garrett.	None.	None.	Present.
30225	J. S. Clark, Kendallville.	None.	None.	Present.
30226	J. S. Clark, Kendallville.	None.	None.	Present.
30227	Swartz & Shook, Kendallville.	None.	None.	Present.
30228	Swartz & Shook, Kendallville.	None.	None.	Present.
30276	E. E. Clark, Garrett.	None.	None.	Present.
30278	Ross & Hays, Garrett.	None.	None.	Present.
30282	J. S. Clark, Kendallville.	None.	None.	Present.
30284	J. S. Clark, Kendallville.	None.	None.	Present.
30286	Swartz & Shook, Kendallville.	None.	None.	Present.
30380a	Black and Thorp, Warren.	None.	None.	Present.
30387	Black and Thorp, Warren.	None.	None.	.154
20414	Ed. A. Hoffman, Muncie.	None.	None.	.267
30418	Chas. Hoffer, Muncie.	None.	None.	.085
30419	J. R. Reeves, Muncie.	None.	None.	.251
30443	M. Shookman, Goshen.	None.	None.	.098
30462	George Rapp, Hartford City.	None.	None.	Present.
30484	Weeks Meat Market, Rushville.	None.	None.	.048
30487	Fort Wayne Beef Co., Fort Wayne.	None.	None.	.094
30496	Fred Eckhart, Fort Wayne.	None.	None.	.124
30497	National Market, Fort Wayne.	None.	None.	.141
30499	Frank Parrott, Fort Wayne.	None.	None.	.275
30500	The Preece Market, Clinton.	None.	None.	.230
30644	Sent in from Richmond.	None.	None.	.390
30682	Henry Nungesser, Richmond.	None.	None.	.390
30684	Frauk Scheibles, Richmond.	None.	None.	.093
30782	John Mayer, Richmond.	Present.	None.	None.
30805	Mrs. Sam Haller, Fort Wayne.	None.	None.	.065
30818	C. M. Mooney, Terre Haute.	Present.	None.	None.
30822	L. R. Welker, Fort Wayne.	None.	None.	.042
30823	Peter Schrick, Fort Wayne.	None.	None.	.095
30882	L. M. Stoffer, Huntington.	None.	None.	.102
30925	Louis Baum, Shirely.	None.	None.	.269

## SAUSAGE.

One hundred and seventy-five sausage samples were examined, of which 27 were listed as illegal either because of the presence of starch or sulphites or, as in one instance, because the sale was decidedly short weight.

## SAUSAGE—LEGAL.

Laboratory No.	Manufacturer or Retailer.	Starch.	Borax.	Sulphites.
30022	Ed. Zahrt, Laporte.	None.	None.	None.
30023	J. Tittle, Laporte.	None.	None.	None.
30024	J. C. Tanke, Laporte.	None.	None.	None.
30025	G. S. Groves, Laporte.	None.	None.	None.
30147	Jos. Tittle, Valparaiso.	None.	None.	None.
30151	Henry Kannerling, Greensburg.	None.	None.	None.
30152	McCormick & Richey, Greensburg.	None.	None.	None.
30153	Louis Bohren, Greensburg.	None.	None.	None.
30226	George Buch, Goodland.	None.	None.	None.
30265	Albert Ault, Columbus.	None.	None.	None.
30272	Chas. B. Dawson, Vincennes.	None.	None.	None.
30273	A. L. Bonhime, Vincennes.	None.	None.	None.
30274	John Schumaker, Vincennes.	None.	None.	None.
30275	C. B. O'Donell, Vincennes.	None.	None.	None.
30276	Albert Ault, Columbus.	None.	None.	None.

## SAUSAGE—LEGAL—Continued.

Laboratory No.	Manufacturer or Retailer.	Starch.	Borax.	Sulphites.
30277	Lawson Meat Co., Columbus.	None.	None.	None.
30278	McLaughlin & Pierce, Columbus.	None.	None.	None.
30279	Lawson Meat Co., Columbus.	None.	None.	None.
30280	Krauss & Boyer, Columbus.	None.	None.	None.
30281	Ross and Hays, Garrett.	None.	None.	None.
30281a	Boechan & Schafer, Columbus.	None.	None.	None.
30282	D. E. Robertson, Columbus.	None.	None.	None.
30283	J. S. Clark, Kendallville.	None.	None.	None.
30283a	Boechan & Schafer, Columbus.	None.	None.	None.
30285	Geo. J. Clark, Kendallville.	None.	None.	None.
30289	C. F. Moyer, Elkhart.	None.	None.	None.
30291	W. Miller, Michigan City.	None.	None.	None.
30291a	Buehler and Son, Elkhart.	None.	None.	None.
30292	Shick Bros., Elkhart.	None.	None.	None.
30295	Reim & Longley, Elkhart.	None.	None.	None.
30298	E. Ruch, Elkhart.	None.	None.	None.
30406	J. E. Hays, Muncie.	None.	None.	None.
30408	J. E. Hays, Muncie.	None.	None.	None.
30429	F. Deingler, Michigan City.	None.	None.	None.
30432	C. E. Louks, Frankfort.	None.	None.	None.
30443	Samuel Evans, Linden.	None.	None.	None.
30445	Shaw Bros. & Banister, Crawfordsville.	None.	None.	None.
30446	Fink and Son, Crawfordsville.	None.	None.	None.
30448	Henry Nungesser, Richmond.	None.	None.	None.
30448a	B. F. Stout, Crawfordsville.	None.	None.	None.
30449	Lang Bros., Richmond.	None.	None.	None.
30450	J. S. Scheidler, Richmond.	None.	None.	None.
30451	John F. Maher, Richmond.	None.	None.	None.
30452	Buehler Bros., Richmond.	1. 107	None.	None.*
30455	Guy Bull, Richmond.	41	None.	None.*
30458	John F. Maher, Richmond.	None.	None.	None.
30463	A. J. Street, Marion.	None.	None.	None.
30463a	W. O. Perkins & Sons, Noblesville.	None.	None.	None.
30464	Thomas Sohl, Noblesville.	None.	None.	None.
30466	Watson Bros., Marion.	None.	None.	None.
30467	Creviston Meat Market, Marion.	None.	None.	None.
30468	Fred Horn, Marion.	None.	None.	None.
30469	Carl F. Barney, Marion.	None.	None.	None.
30472	Swayzee Market, Marion.	None.	None.	None.
30473	Buehler Bros., Marion.	None.	None.	None.
30475	E. V. Barney, Marion.	None.	None.	None.
30477	Buehler Bros., Marion.	None.	None.	None.
30484	Chas. Ritter, Hartford City.	None.	None.	None.
30486	Michael & Michael, Russiaville.	None.	None.	None.
30487	W. N. Wall, Frankfort.	None.	None.	None.
30489	Frank Milner, Frankfort.	None.	None.	None.
30491	Fort Wayne Beef Co., Ft. Wayne.	None.	None.	None.
30492	Fort Wayne Cooperative Co., Ft. Wayne.	None.	None.	None.
30493	Fred Eckhart, Fort Wayne.	None.	None.	None.
30494	National Market, Fort Wayne.	None.	None.	None.
30503	Stoody & Zwerner, Clinton.	None.	None.	None.
30504	Clinton Packing Co., Clinton.	None.	None.	None.
30506	F. Naggar, Terre Haute.	None.	None.	None.
30507	W. F. Taylor, Terre Haute.	None.	None.	None.
30508	C. L. Witly, Terre Haute.	None.	None.	None.
30510	S. J. Bresett, Terre Haute.	None.	None.	None.
30511	G. C. Baester, Terre Haute.	None.	None.	None.
30514	Daisy Valentine, Terre Haute.	None.	None.	None.
30516	Bazley Meat Market, Lafayette.	None.	None.	None.
30520	F. Zimmerman, Mishawaka.	None.	None.	None.
30522	Woodka Bros., Mishawaka.	None.	None.	None.
30524	Fred Weber, Mishawaka.	None.	None.	None.
30525	Fred Major, Mishawaka.	None.	None.	None.
30526	Fred Major, Mishawaka.	None.	None.	None.
30528	The Fair, Goshen.	None.	None.	None.
30530	M. Shookman, Goshen.	None.	None.	None.
30532	J. A. Lower, Goshen.	None.	None.	None.
30534	A. W. Jacobs, Goshen.	None.	None.	None.
30550	Sent in from Richmond.	None.	None.	None.
30551	Peoples Meat Market, Rushville.	None.	None.	None.
30552	Kramer Meat Market, Rushville.	None.	None.	None.
30553	Horn Bros., Valparaiso.	None.	None.	None.
30553a	Jesse Booth, Rushville.	None.	None.	None.

## SAUSAGE—LEGAL—Continued.

Laboratory No.	Manufacturer or Retailer.	Starch.	Borax.	Sulphites.
30563	Harry Zink, Monticello	None.	None.	None.
30564	C. P. Siddinger, Shelbyville	None.	None.	None.
30565	Frazier Bros., Kokomo	None.	None.	None.
30568	E. Bell & Son, Kokomo	None.	None.	None.
30569	Critchlow Bros., Kokomo	None.	None.	None.
30571	Dowdell & Baker, Kokomo	None.	None.	None.
30573	Williams Bros., Kokomo	None.	None.	None.
30575	C. A. Malaby, Kokomo	None.	None.	None.
30576	W. H. Keck, Kokomo	None.	None.	None.
30578	Chicago Meat Market, Terre Haute	None.	None.	None.
30578a	Pierce & Son, Kokomo	None.	None.	None.
30579	W. Fatthauer, Terre Haute	None.	None.	None.
30580	C. Cain, Monticello	None.	None.	None.
30581	Frazier Jackson, Monticello	None.	None.	None.
30582	B. F. Harrison, Clinton	None.	None.	None.
30585	Wm. Klee, Terre Haute	None.	None.	None.
30601	Elfers and Miller, Logansport	None.	None.	None.
30602	Louis Luck, Logansport	None.	None.	None.
30603	M. McCaffery Co., Logansport	None.	None.	None.
30604	McDowell & Routh, Logansport	None.	None.	None.
30606	Abe Stern, Logansport	None.	None.	None.
30610	F. W. Kinney, Logansport	None.	None.	None.
30635	John Sliffer, Garrett	None.	None.	None.
30637	R. E. Cannon, Plymouth	None.	None.	None.
30639	Pesch Bros., Plymouth	None.	None.	None.
30640	H. Kiesing, Rochester	None.	None.	None.
30683	Buehler Bros., Richmond	Present	None.	None.*
30688	John Sliffer, Garrett	None.	None.	None.
30690	R. E. Cannon, Plymouth	None.	None.	None.
30693	Pesch Bros., Plymouth	None.	None.	None.
30694	A. W. Smith, Rochester	None.	None.	None.
30695	H. H. Kisinger, Rochester	None.	None.	None.
30702	Long Bros., Richmond	None.	None.	None.
30720	Hill Bros., Fairmount	None.	None.	None.
30844	John Liekauf, Fort Wayne	None.	None.	None.
30845	P. A. Deitchel, Fort Wayne	None.	None.	None.
30847	Elmer Cash, Fort Wayne	None.	None.	None.
30848	N. H. Hook, Maysville	None.	None.	None.
30855	G. H. Weil, Fort Wayne	None.	None.	None.
30856	Holland Sissianc, Fort Wayne	None.	None.	None.
30861	Wilkens Bros., Fort Wayne	None.	None.	None.
30863	Chas. W. Flautz, Shelbyville	None.	None.	None.
30824	Sent in from Indianapolis	None.	None.	None.
30838	Sent in from Muncie	None.	None.	None.
30883	W. J. Doell, Huntington	None.	None.	None.
30886	Chas. Middleton, Huntington	None.	None.	None.
30889	Nicholas Lindermuth, Huntington	None.	None.	None.
30896	W. H. Swain, Huntington	None.	None.	None.
30915	Horace Boston, Indianapolis	None.	None.	None.
30916	Hilgemeler & Bros., Indianapolis	None.	None.	None.
30918	Sam Davis, Indianapolis	None.	None.	None.
30920	J. C. & E. F. Overman, Indianapolis	None.	None.	None.
30921	H. G. Arnold, Indianapolis	None.	None.	None.
30924	Frank Overman, Indianapolis	None.	None.	None.
30929	Sent in from Muncie	None.	None.	None.
30952	H. R. Matzke, Indianapolis	None.	None.	None.
30954	Joe Fecker, Indianapolis	None.	None.	None.
30955	F. Wurster, Indianapolis	None.	None.	None.
30962	Hilkin Bros., Auburn	None.	None.	None.
30965	Swartz & Baldorf, Auburn	None.	None.	None.

\*Package labeled properly.

## SAUSAGE—ILLEGAL.

Laboratory No.	Manufacturer or Retailer.	Starch.	Borax.	Sulphites.	Remarks.
30011	W. E. Smith, Michigan City.	Present..	None...	None...	
30026	Lawenstine & Son, Valparaiso.	None...	None...	.055	
30223	Arthur Gagnon, Goodland.	Present..	None...	None...	
30223a	E. E. Clark, Garrett.	None...	None...	Present..	
30266	E. Wolf, Columbus.	None...	None...	.100	
30267	E. Wolf, Columbus.	None...	None...	.103	
30277	E. E. Clark, Garrett.	None...	None...	Present..	
30287	Swartz & Hook, Kendallville.	None...	None...	Present..	
30411	Edw. A. Hoffer, Muncie.	None...	None...	.047	
30415	Chas. Hoffer, Muncie.	None...	None...	.083	
30416	Buehler Bros., Muncie.	Present..	None...	None...	
30441	F. L. Bogeman, Shelbyville.	None...	None...	.034	
30444	K. C. Kestler, Mishawaka.	None...	None...	Present..	
30460	Buehler Bros., Muncie.	None...	None...	None...	Short Weight.
30478	M. L. Johnson, Martin.	None...	None...	.037	
30479	W. F. Naller, Marion.	Present..	None...	None...	
30480	Davis & Lee, Rushville.	Present..	None...	None...	
30481	Millner Provision Co., Frankfort.	Present..	None...	None...	
30495	Jos. Nellerfield, Fort Wayne.	None...	None...	.079	
30498	Frank Parrott, Fort Wayne.	None...	None...	.141	
30501	The Preece Market, Clinton.	None...	None...	.098	
30518	L. C. Kistler, Mishawaka.	None...	None...	Present..	
30566	T. F. Jones, Kokomo.	Present..	None...	None...	
30821	John Frederick, Fort Wayne.	None...	None...	Present..	
30820	Herman Scheele, Fort Wayne.	None...	None...	.036	
30881	L. M. Stoffel, Huntington.	None...	None...	.016	
30926	Sam Davis, Indianapolis.	None...	None...	.241	

## WEINERWURST.

Three of five weinerwurst samples were classed as illegal because of the presence of undeclared cereals.

## WEINERWURST.

Laboratory No.	Manufacturer or Retailer.	Starch.	Borax.	Sulphites.	Remarks.
30280	E. E. Clark, Garrett.	None...	None...	None...	Legal.
30438	Henry Nungesser, Richmond.	Present..	None...	None...	Illegal.*
30439	Henry Nungesser, Richmond.	Present..	None...	None...	Illegal.*
30445	Jos. Nellerfield, Fort Wayne.	None...	None...	None...	Legal.
30819	John Rassel, Terre Haute.	1.845%	None...	None...	Illegal.*

\*Not labeled 'Cereal'.

## LARD.

But one of the 14 samples of lard examined was marked illegal and that because the sale was short weight.



## LARD.

Laboratory No.	Manufacturer or Retailer.	Butyro Reading at 40° C.	Remarks.
30031	Sent in from Washington.....	.....	No impurities present. Legal.
30033	Sent in from Huntington.....	50.5	Sample is pure lard.
30172	Henry Kannerling, Greensburg.....	51.5	Legal.
30174	H. Bohren, Greensburg.....	51.25	Legal.
30175	McCormick & Richey, Greensburg.....	50.0	Legal.
30218	Sent in from Edinburg.....	50.0	Legal.
30248	Sent in from Indianapolis.....	51.0	Legal.
30562	E. G. Fielder, Indianapolis.....	.....	Short weight. Illegal.
30583	Jesse Booth, Rushville.....	49.9	Legal.
30588	Peoples Meat Market, Rushville.....	49.9	Legal.
30856	Mattie E. Frazier, Cloverdale.....	50.0	Legal.
31021	Sent in from Columbus.....	50.2	Legal.
31166	Geo. P. Kuntz, Greenfield.....	50.5	Legal.
31183	Sent in from Columbus.....	52.0	Legal.

## OYSTERS.

Thirteen of the 21 oyster samples contained added water and for that reason were listed as illegal. These samples were selected because of their apparent high water content.

## OYSTERS LEGAL

Laboratory No.	Manufacturer or Retailer.	Total Weight gms.	Total Solids	Meat.		Liquor.			Remarks.
				Weight.	Per Cent Solids.	Percent	Weight gms.	Percent Solids.	
30331	George Nicholson, Indianapolis.	509	16.65	455	18.1	10.6	54.0	4.78	
30333	E. Sowders, Indianapolis.	483	19.3	431	20.05	4.55	22.0	3.17	
30342	J. M. Sowders, Indianapolis.	535	13.55	430	17.8	10.30	55.0	2.65	
30380	H. F. Willis, Indianapolis.	460	.....	410	18.86	9.20	50.0	6.12	
30381	R. Sowders, Indianapolis.	550	.....	465	18.3	15.45	85.0	4.57	
30382	Anne McCormick, Indianapolis.	495	.....	440	18.8	11.10	55.0	3.15	
30383	R. R. Sowders, Indianapolis.	530	.....	470	16.72	11.30	60.0	3.88	
30384	E. Sowders, Indianapolis.	485	.....	445	15.39	8.25	40.0	4.08	

## OYSTERS ILLEGAL.

Laboratory No.	Manufacturer or Retailer.	Total Weight gms.	Total Solids	Meat.		Liquor.			Remarks.
				Weight.	Percent Solids.	Percent	Weight	Percent Solids.	
30332	R. R. Sowders, Indianapolis.	497	10.00	427	11.25	14.06	70	2.33	Added water.
30334	Hattie Egan, Indianapolis.	513	11.42	420	13.90	18.10	93	1.97	Added water.
30335	J. M. Sowders, Indianapolis.	442	12.75	428	13.80	4.30	19	4.04	Short weight.
30336	E. Sowders, Indianapolis.	473	12.95	427	13.91	6.70	48	4.45	Added water.
30337	R. R. Sowders, Indianapolis.	489	9.97	400	11.62	18.20	89	2.49	Added water.
30352	Hattie Egan, Indianapolis.	493	10.0	424	11.18	13.95	69	2.79	Added water.
30353	Anne McCormick, Indianapolis.	547	12.21	472	13.63	13.70	75	3.02	Added water.
30354	R. Sowders, Indianapolis.	552	12.52	457	12.56	18.70	105	3.42	Added water.
30355	H. F. Willis, Indianapolis.	545	16.00	380	12.86	13.48	105	4.01	Added water.
30356	George Nicholson, Indianapolis.	485	13.61	410	14.83	11.80	55	4.10	Added water.
30376	Hattie Egan, Indianapolis.	493	.....	357	13.56	26.10	126	2.80	Added water.
30377	George Nicholson, Indianapolis.	495	.....	425	12.10	14.10	170	3.79	Added water.
30378	J. M. Sowders, Indianapolis.	515	.....	461	14.16	10.50	54	4.54	Added water.

## SORGHUM MOLASSES AND SYRUPS.

Five of the 12 sorghum syrups examined were illegal because of the presence of undeclared glucose.

## SORGHUM MOLASSES AND SYRUPS.

Laboratory No.	Manufacturer or Retailer.	Polarization		Su-crose.	Glu-cose.	Remarks.
		Direct.	Invert.			
30200	Sent in from Muncie.....	+152.2	+14.45	5.09	33.5	Glucose present.
30250	Sent in from Muncie.....	+14.4	-2.0	24.8	None...	Legal.
30251	Sent in from Muncie.....	+56.8	+44.0	19.4	52.8	Glucose present.
30324	Carter and Son, Noblesville.....	+46.4	+7.04	40.60	3.3	Glucose present.
30330	Sent in from Indianapolis.....	+51.2	+7.04	44.25	3.9	Glucose present.
30386	Sent in from Indianapolis.....	+4.0	-2.0	4.5	None...	Legal.
30392	Carter and Son, Noblesville.....	+47.0	-16.5	48.1	None...	Legal.
30393	Carter and Son, Noblesville.....	+54.0	-9.9	49.3	None...	Legal.
30409	Hurst Bros., Muncie.....	+36.0	-18.70	42.0	None...	Legal.
30410	W. W. Comer, Muncie.....	+32.8	+1.10	24.5	4.75	Glucose present.
30445	J. H. Weimer, Union City.....	+29.0	-14.30	33.25	None...	Legal.
30453	John Eggemeyer, Richmond.....	+20.0	-15.4	27.1	None...	Legal.

## TOMATO PRODUCTS.

Twenty-seven samples of tomato products were examined to determine their microscopical condition. Six or 22.2% were classed as illegal because the bacterial limits and mould and yeast counts were above the standard set by the government for such products.

## TOMATO PRODUCTS.

Laboratory No.	Classification.	Manufacturer or Retailer.	Per Cent. of Moulds.	Yeasts per 1-60 mm	Bacteria per cc	Remarks.
27240	Catsup	Lang & Co., Warren				Legal
30211	Catsup	Dyer Packing Co., Vincennes	26.0	12	14,400,000	Legal
30216	Catsup	A. H. Perfect Co., Fort Wayne	16.0	74	46,000,000	Illegal
30220	Tomato Pulp	Dyer Packing Co., Vincennes	18.0	16	9,600,000	Legal
30221	Catsup	A. H. Perfect Co., Fort Wayne				Illegal
30305	Tomato Pulp	J. T. Polk Co., Greenwood	16.0	17	16,800,000	Legal
30305a	Tomato Pulp	J. T. Polk Co., Greenwood	16.0	16	16,800,000	Legal
30305b	Tomato Pulp	J. T. Polk Co., Greenwood	14.0	13	14,400,000	Legal
30305c	Tomato Pulp	J. T. Polk Co., Greenwood	12.0	13	12,000,000	Legal
30305d	Tomato Pulp	J. T. Polk Co., Greenwood	15.0	15	14,400,000	Legal
30306	Tomato Pulp	J. T. Polk Co., Greenwood	18.0	17	21,000,000	Legal
30307	Tomato Pulp	J. T. Polk Co., Greenwood	18.0	21	14,400,000	Legal
30308	Tomato Pulp	J. T. Polk Co., Greenwood	14.0	19	16,800,000	Legal
30309	Tomato Pulp	J. T. Polk Co., Greenwood	24.0	16	19,200,000	Legal
30400	Tomato Pulp	J. T. Polk Co., Greenwood	14.0	14	16,800,000	Legal
30401	Tomato Pulp	J. T. Polk Co., Greenwood	14.0	12	16,400,000	Legal
30402	Tomato Pulp	J. T. Polk Co., Greenwood	22.0	18	19,200,000	Legal
30403	Tomato Pulp	J. T. Polk Co., Greenwood	28.0	16	12,000,000	Legal
30833	Tomato Soup	Columbia Conserve Co., Indianapolis	16.0	10	12,000,000	Legal
30835	Tomato Soup	Columbia Conserve Co., Indianapolis	20.0	14	19,200,000	Legal
30837	Tomato Soup	Columbia Conserve Co., Indianapolis	16.0	8	16,800,000	Legal
30834	Tomato Pulp	Continental Brokerage Co., Indianapolis	18.0	8	24,000,000	Legal
30955	Tomato Paste	Morgantown Packing Co., Morgantown	88.0	21	48,000,000	Illegal
30956	Tomato Pulp	Dyer Packing Co., Vincennes	68.0	11	33,600,000	Illegal
30957	Tomato Pulp	Knightstown Conserve, Knightstown	52.0	12	14,400,000	Legal
31171	Tomato Pulp	Knightstown Conserve, Knightstown	66.0	12	43,200,000	Illegal
31176	Tomato Pulp	Knightstown Conserve, Knightstown	68.0	16	38,400,000	Illegal

## MISCELLANEOUS VINEGARS.

Twenty-four of the 44 vinegar samples examined, or 54.5%, were listed as illegal, in practically every case because of a low acid content. Two samples contained but .81% of acetic acid. The illegal samples were for the most part the product of the farmer. Their high alcohol content showed them to be immature vinegars which in many cases should more properly be sold as hard ciders.

## MISCELLANEOUS VINEGARS—LEGAL.

Laboratory No.	Classification.	Manufacturer or Retailer.	Acidity.
30036	Vinegar	C. W. Bange, Indianapolis.	7.01
30038	Vinegar	C. W. Bange, Indianapolis.	4.36
30039	Vinegar	C. W. Bange, Indianapolis.	4.48
30192	Vinegar	Mr. Keith, Monroeville.	5.12
30246	Vinegar	Indianapolis Fancy Grocery, Indianapolis.	4.76
30350	Vinegar	B. H. Angelberk, Madison.	4.17
30363	Vinegar	A. C. Eccles, Greenwood.	4.13
30379	Vinegar	J. W. Wilson Co., Logansport.	5.49
30426	Vinegar	Frank Powell, Indianapolis.	6.13
30427	Vinegar	Frank Powell, Indianapolis.	5.23
30433	Vinegar	Schnull & Co., Indianapolis.	4.14
30436	Vinegar	Parsons-Scoville, Evansville.	4.08
30721	Vinegar	W. H. Doenges, Indianapolis.	5.43
30722	Vinegar	Sent in from Mishawaka.	4.15
30825	Vinegar	Grocers Supply Co., Indianapolis.	9.78
30845	Pear Vinegar.	Kingan & Co., Indianapolis.	5.83
30959	Vinegar	L. C. Nicholson, Indianapolis.	6.60
30983	Vinegar	W. D. Huffman, Indianapolis.	5.92
30994	Cider Vinegar.	R. C. Leonard, Indianapolis.	4.89
31017	Vinegar	Grocers Supply Co., Indianapolis.	9.84

## MISCELLANEOUS VINEGARS—ILLEGAL.

Laboratory No.	Classification.	Manufacturer or Retailer.	Acidity.	Remarks.
30037	Vinegar	C. W. Bange, Indianapolis.	.81	Acidity low.
30040	Vinegar	F. W. Grise, Evansville.	4.26	Solids, ash low
30152	Vinegar	G. I. Burton, Mitchell.	1.47	Acidity low.
30170	Vinegar	J. Barnett, West Newton.	2.96	Acidity low.
30349	Cider Vinegar.	J. Wehner, Madison.	3.83	Acidity low.
30343	Vinegar	Sent in from Terre Haute.	3.70	Acidity low.
30441	Distilled Vinegar	Peru Grocery Co., Peru.	3.85	Acidity low.
30446	Vinegar	J. H. Rickey, Monticello.	4.36	Solids low.
30460	Distilled Vinegar	A. M. Hirsch, Indianapolis.	3.90	Acidity low.
30541	Vinegar	Sent in from Mishawaka.	4.20	Alkalinity low.
30584	Colored Distilled	Crown Bottling Co., Terre Haute.	3.80	Acidity low.
30584a	Colored Distilled	Crown Bottling Co., Terre Haute.	3.87	Acidity low.
30767	Vinegar	Jacob Foltz, Evansville.	3.18	Acidity low.
30984	Colored Distilled	W. D. Huffman, Indianapolis.	5.33	Mislabeled.
30995	Cider Vigenar.	John Vorwald, Columbus.	1.0	Aciditu low.
30996	Vinegar	C. O. Wood, Terre Haute.	1.81	Acidity low.
30997	Vinegar	W. H. Craig, Noblesville.	1.67	Acidity low.
31000	Vinegar	W. E. Sayer, Indianapolis.	1.82	Acidity low.
31101	Vinegar	H. P. Letwich, Indianapolis.	1.44	Acidity low.
31113	Vinegar	C. B. Letwich, Indianapolis.	3.30	Acidity low.
31140	Vinegar	Lewis Michaels, Montgomery.	1.18	Acidity low.
31180	Vinegar	Lewis Michaels, Montgomery.	2.40	Acidity low.
31181	Vinegar	Lewis Michaels, Montgomery.	2.11	Acidity low.
31182	Vinegar	John F. Crane, Spencer.	2.11	Acidity low.

## MISCELLANEOUS FOOD PRODUCTS.

Fifty samples of food products of a miscellaneous character such as canned foods, yeast improvers, food preservatives, nuts, candies, fruit juices, etc., were examined. Eleven of the samples were classed as illegal either because of the presence of preservatives or because the character of the food was such that it was unfit for eating.

## MISCELLANEOUS FOOD PRODUCTS.

Laboratory No.	Manufacturer or Retailer.	Classification.	Remarks.
29169	L. A. Wheeler, Princeton.	Horseradish.	Legal.
30032	Sent in from Washington.	Pork.	Legal.
30035	Sent in from Fort Wayne.	Meat Preservative	Legal.
30153	Bartlett Tea & Coffee Co., Indianapolis.	Tea.	Legal.
30171	F. R. Olson, East Gary.	Raspberry Flavor.	Legal.
30197	Sent in from LaGrange.	Canned Blackberries.	Legal.
30213	Sent in from LaGrange.	Canned Cherries.	Legal.
30214	Sent in from LaGrange.	Canned Peaches.	Legal.
30230	Sent in from Brownstown.	Horseradish.	Legal.
30271	Sent in from Napanee.	Coffee.	Legal.
30274	Whitehead Bakery, Goshen.	Nu Pro.	Legal.
30275	Sent in from Plymouth.	Nu Pro.	Legal.
30320	Blanton Milling Co., Indianapolis.	Yeast Improver.	
30390	Sent in from Richmond.	Prepared Mustard.	Illegal; spoiled.
30390a	Eddie Lockwood, Indianapolis.	English Walnut.	Illegal; stale.
30391	Sent in from Terre Haute.	Buttermilk.	Legal.
30392	Sent in from Marion.	Meat Preservative.	Illegal; sulphites.
30394	H. Haines, Indianapolis.	Whipsit.	Legal.
30412	Hoffman Bros., Muncie.	Mince Meat.	Legal.
30413	Swayzee Market, Marion.	Lemon Substitute.	Legal.
30425	Schnull & Co., Indianapolis.	English Walnuts.	Pass: 82.5 % Good.
30428	Wm. H. Block Co., Indianapolis.	Goose Fat.	Legal.
30441	Sent in from Wabash.	Fresh Pork.	Illegal; Cholera indicated.
30459	Jasper R. Sear, Muncie.	Candy.	Legal.
30461	W. N. Sutton, Princeton.	Ham Preservative.	Legal.
30554	Sidlinger, Shelbyville.	Freeze-Em Pickle.	Legal.
30558	The Crowley Co., Vincennes.	Pork and Beans.	Illegal; Unfit for food.
30599	Dilling & Co., Indianapolis.	Chocolate Candy.	Legal.
30626	Wm. H. Block Co., Indianapolis.	Coca Cola Extract.	Legal.
30662	Henry Nungesser, Richmond.	Preservative.	Illegal; sulphites.
30709	Sent in from Elkhart.	Cake.	Illegal.
20776	A. L. King, Indianapolis.	Lemon Juice.	Illegal.
30777	Donald Hollibaugh, Wolcottville.	Coffee.	Legal.
30786	Mr. Smith, Marion.	Ham-O-Ream.	Legal.
30846	Thos. W. Hiser, Michigan City.	Peanut Oil.	Legal.
30852	W. P. Colshier, Decatur.	Crushed Cherries.	Legal.
30853	W. P. Colshier, Decatur.	Strawberry Syrup.	Legal.
30854	W. P. Colshier, Decatur.	Cherry Syrup.	Legal.
30855	W. P. Colshier, Decatur.	Vanilla Syrup.	Legal.
30866	T. G. Hudson, Marion.	Mustard.	Illegal; Charcoal present.
30904	White River Creamery Co.	Buttermilk.	Legal.
30927	A. R. Kresler, Rensselaer.	Dough.	Legal.
30935	C. L. Shugart, Marion.	Horseradish.	Legal.
30936	W. A. Eurich, Anderson.	Horseradish.	Legal.
30948	Thos. W. Hiser, Michigan City.	Peanut Oil.	Legal.
30951	Mr. John Brownell, Brazil.	Buttermilk.	Illegal; In advance state fermentation.
31108	Sent in from Clinton.	Fried Chicken.	Legal.
31131	Sent in from Anderson.	Candy.	Legal.
31137	Sent in from Muncie.	Baking Powder.	Legal.
31220	Montgomery & Snyder, Brooks.	Canning Compound.	Legal.
31225	Wm. H. Block Co., Indianapolis.	Cocoa.	Legal.

REPORT

FROM THE

DRUG LABORATORY





## REPORT FROM THE DRUG LABORATORY.

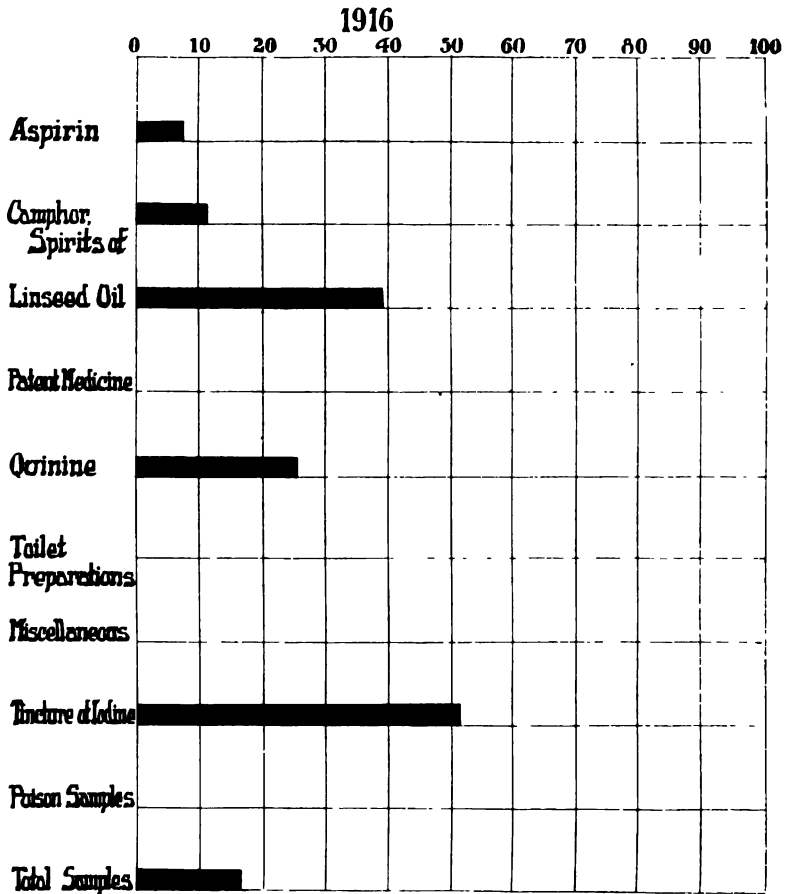
We have long since concluded that there was little profit to be gained for drug users by continued analyses of staple pharmaceuticals. The druggist is not interested in selling sub-standard preparations. His business is an ethical one, besides there is ordinarily little profit in diluting tincture of iodine, in cutting down the camphor content of spirits of camphor, of stocking his shelves with worthless lime water. The work of the laboratories has therefore been devoted largely to special studies of products sent in by physicians and of classes of goods of dubious character.

During the year 311 samples of drugs were examined of which 38 or 17.7% were adulterated.

RESULTS OF ANALYSIS OF DRUG SAMPLES FOR THE YEAR ENDING  
OCTOBER 1, 1915, TO OCTOBER 1, 1916.

Article.	Legal.	Illegal.	Total.	Per cent Adultera- tion.
Aspirin .....	137	12	149	8.0
Camphor, Spirits of .....	8	1	9	11.1
Linseed Oil .....	16	10	26	38.5
Patent Medicines .....			20	
Quinine .....	3	1	4	25.0
Toilet Preparations .....			24	
Miscellaneous .....			37	
Tincture of Iodine .....	13	14	27	51.8
Samples Examined for Poison .....			15	
Total .....	177	38	311	17.7

# PERCENTAGE of ADULTERATION of DRUGS ANALYZED in INDIANA



## ASPIRIN TABLETS.

All drugs are scarce when prices are high, but those manufactured in Germany are unobtainable. Aspirin, a proprietary product, reached such high prices that peddlers saw an opportunity to sell milk sugar and citric acid in the form of tablets as aspirin. A veritable flood of fake aspirin issued from the impromptu laboratories of the get-rich-quick pharmacists.

In a study of the aspirin situation in Indiana 149 samples were collected. Of this number 12 were adulterated. The druggists who sold the samples were arrested and fined. After this investigation the aspirin peddlers left the state.

## ASPIRIN—LEGAL.

Laboratory No.	Manufacturer or Retailer.	Grains Per Tablet		Remarks.
		Label.	Found.	
30003	P. G. Klinkenberg, Kendallville.....	5.00	5.27	Slightly low.
30004	A. R. Otis, Kendallville.....	5.00	5.07	
30008	Henry Fischer, Kendallville.....	5.00	5.21	
30009	J. D. Snyder, Kendallville.....	5.00	5.18	
30353	Board of Pharmacy, Indianapolis.....	5.00	4.83	
30357	Pioneer Pharmacy, Kokomo.....	5.00	4.69	
30612	E. Longstreet, Mishawaka.....	5.00	4.90	
30613	Freut & Thomas, Mishawaka.....	5.00	4.96	
30614	E. C. Went & Co., Mishawaka.....	5.00	5.05	
30629	R. W. Stormont, Oakland City.....	5.00	5.00	
30632	Peoples Drug Store, Mishawaka.....	5.00	4.66	
30366	W. H. Hickerson, Warren.....	5.00	5.00	
30367	The Wayne Pharmacy, Fort Wayne.....	5.00	4.97	Salicylic acid absent.
30421	Sent in from Arcadia.....	5.00	.....	
30615	W. Pensiner, Indianapolis.....	5.00	5.21	Slightly low.
30617	M. Cornell, Rushville.....	5.00	5.07	
30618	Johnson, Druggist, Rushville.....	5.00	5.15	
30619	Hargrove & Mullin, Rushville.....	5.00	5.15	
30620	Fox Bros., Rushville.....	5.00	5.04	
30621	Wolcott, Rushville.....	5.00	5.12	
30623	Chas. Mason, Dugger.....	5.00	4.69	
30624	Hamilton Pharmacy, Dugger.....	5.00	4.75	
30625	Beatty & Walters, Sullivan.....	5.00	5.02	
30626	Barnett Pharmacy, Sullivan.....	5.00	4.78	
30627	Robert Sisson, Oakland City.....	5.00	5.05	
30628	J. C. Osborn, Oakland City.....	5.00	5.13	
30633	Haag Drug Co., Indianapolis.....	5.00	5.07	
30634	Hook Drug Co., Indianapolis.....	5.00	5.15	
30636	Pearson's Drug Co., Indianapolis.....	5.00	5.07	
30637	Haag Drug Co., Indianapolis.....	5.00	5.04	
30640	Francis Pharmacy, Indianapolis.....	5.00	5.12	
30642	Clark & Cade, Indianapolis.....	5.00	5.04	
30649	Jackson Drug Co., Indianapolis.....	5.00	5.12	
30650	State House Pharmacy, Indianapolis.....	5.00	5.24	
30652	Star Pharmacy, Indianapolis.....	5.00	5.07	
30653	Hook Drug Co., Indianapolis.....	5.00	5.19	
30654	Farver Pharmacy, Indianapolis.....	5.00	5.27	
30659	S. J. Huder, Indianapolis.....	5.00	5.21	
30692	Applegate Drug Co., South Bend.....	5.00	5.15	
30693	O. Bastian, South Bend.....	5.00	4.83	
30695	Coonley Drug Co., South Bend.....	5.00	5.24	
30698	Welles Drug Co., Bloomington.....	5.00	5.00	
30702	T. J. Penwood, Bloomington.....	5.00	5.05	
30706	J. C. Vermilga, Bloomington.....	5.00	4.89	
30710	R. J. Bryant, Bloomington.....	5.00	4.94	
30716	Owl Drug Store, Bedford.....	5.00	5.05	
30717	B. Williams, Bedford.....	5.00	5.07	
30722	Dodd & Douthitt, Bedford.....	5.00	5.10	

## ASPIRIN—LEGAL—Continued.

Laboratory No.	Manufacturer or Retailer	Grains Per Tablet		Remarks.
		Label.	Found.	
30724	Beddor & Chrisler, Bedford.....	5.00	4.83	
30728	A. H. Miller, Huntingburg.....	5.00	5.05	
30734	Sherrod & Lindley Co., West Baden..	5.00	4.66	
30738	Miller and Moore, West Baden.....	5.00	4.56	
30739	Homestead Drug Store, West Baden..	5.00	4.56	
30743	E. Mayrs, New Albany.....	5.00	4.88	
30744	McDonald-Stockdell Co., New Albany	5.00	5.05	
30750	W. Pfan, Jeffersonville.....	5.00	5.00	
30751	B. Doolittle, Jeffersonville.....	5.00	4.83	
30767	H. Zimmer, Indianapolis.....	5.00	5.04	
30768	Ed. Stucky, Indianapolis.....	5.00	4.64	
30769	Clark & Cade, Indianapolis.....	5.00	5.02	
30771	H. E. Frauer Co., Indianapolis.....	5.00	4.86	
30772	Ed. Hampton, Terre Haute.....	5.00	5.02	
30773	Bauer Drug Co., Terre Haute.....	5.00	5.00	
30774	Valentines, Terre Haute.....	5.00	4.69	
30775	H. C. Randall, Terre Haute.....	5.00	4.97	
30776	J. D. King Co., Terre Haute.....	5.00	4.91	
30777	Buntin Drug Co., Terre Haute.....	5.00	5.24	
30778	M. Jack, Terre Haute.....	5.00	4.97	
30779	Herbers Drug Store, Terre Haute.....	5.00	5.27	
30780	J. Shandey, Terre Haute.....	5.00	5.24	
30782	Nulkam, Terre Haute.....	5.00	5.02	
30783	R. Reeder, Terre Haute.....	5.00	5.15	
30784	New Central Pharmacy, Terre Haute..	5.00	4.97	
30785	J. Cook, Terre Haute.....	5.00	4.83	
30786	A. Austin, Terre Haute.....	5.00	5.19	
30788	Batey & Walters, Sullivan.....	5.00	4.61	
30789	Bennetts Drug Co., Sullivan.....	5.00	5.08	
30790	John Smock & Son, Sullivan.....	5.00	4.91	
30791	E. E. Stewart, Indianapolis.....	5.00	4.91	
30792	Case Bros., Indianapolis.....	5.00	5.02	
30793	C. G. Mueller, Indianapolis.....	5.00	4.97	
30795	Clay & Emmons, Indianapolis.....	5.00	5.02	
30796	J. R. Phillips Co., Indianapolis.....	5.00	4.97	
30797	A. B. Carr, Indianapolis.....	5.00	4.80	
30798	W. Stedfeld, Indianapolis.....	5.00	5.13	
30800	Crescent Pharmacy, Indianapolis.....	5.00	5.00	
30806	F. J. Miller, Fort Wayne.....	5.00	5.13	
30807	E. O. Ringwalt, Fort Wayne.....	5.00	5.00	
30808	Jacob Bill, Fort Wayne.....	5.00	5.13	
30809	D. F. Micahelis, Fort Wayne.....	5.00	5.13	
30810	F. W. Miller, Fort Wayne.....	5.00	5.30	
30811	Phillip Koehlinger, Fort Wayne.....	5.00	4.86	
30812	C. F. Regedons, Fort Wayne.....	5.00	5.00	
30801	F. Keckam, Indianapolis.....	5.00	4.95	
30826	D. P. Campbell Bros., Muncie.....	5.00	5.12	
30833	Walter Schumaker, Muncie.....	5.00	5.07	
30864	Schultz & Bowman, Lafayette.....	5.00	5.07	
30865	Hogan Drug Co., Lafayette.....	5.00	4.89	
30866	Wells-Yeager Best Co., Lafayette.....	5.00	4.87	
30870	B. Drees, Lafayette.....	5.00	5.04	
30871	Bartlett Drug Co., Lafayette.....	5.00	4.87	
30872	S. G. Silverberg, Muncie.....	5.00	5.09	
30873	Chas. Thornberg, Muncie.....	5.00	5.15	
30874	Hook Drug Co., Indianapolis.....	5.00	5.12	
30875	Smock & Gardner, Lafayette.....	5.00	5.04	
30876	Kienly Drug Store, Lafayette.....	5.00	5.02	
30878	E. P. Whinery, Muncie.....	5.00	5.04	
30879	Wm. Elliott, Muncie.....	5.00	5.12	
30880	Peoples Drug Co., Muncie.....	5.00	5.18	
30963	E. W. Brandt, Fort Wayne.....	5.00	4.83	
30966	A. W. F. Month, Fort Wayne.....	5.00	5.32	
30967	J. J. Brink & Son, Fort Wayne.....	5.00	5.02	
30968	G. F. Miller, Fort Wayne.....	5.00	5.19	
30969	Pickle & Wagner, Fort Wayne.....	5.00	4.75	
30970	C. H. Albersmeyer, Fort Wayne.....	5.00	5.05	
30971	Jos. A. Sigl, Fort Wayne.....	5.00	5.19	
30972	O. M. Goss, Huntington.....	5.00	4.78	
30973	Howard Mueller, Huntington.....	5.00	5.52	
30974	Bradley Bros., Huntington.....	5.00	4.75	
30975	G. A. Clapsattle, Fort Wayne.....	5.00	5.65	
30976	Spiegel Bros., Fort Wayne.....	5.00	4.69	
30977	A. W. Kothn, Fort Wayne.....	5.00	5.16	

## ASPIRIN—LEGAL—Continued.

Laboratory No.	Manufacturer or Retailer.	Grains Per Tablet		Remarks.
		Label.	Found.	
30978	Herman Bill, Fort Wayne.....	5.00	5.08	
30979	H. W. Mienzen, Fort Wayne.....	5.00	5.32	
30980	J. D. Lewis, Fort Wayne.....	5.00	5.10	
30981	A. C. Locke, Fort Wayne.....	5.00	5.00	
30982	Meyers Bros., Fort Wayne.....	5.00	4.86	
30983	Woodworths, Fort Wayne.....	5.00	5.35	
30984	A. C. Bechstem, Huntington.....	5.00	5.10	
30985	Chas. F. Carr, Huntington.....	5.00	5.16	
30988	Justice Lovett, Huntington.....	5.00	5.05	
30989	Mellium & McClellan, Huntington.....	5.00	5.02	
30990	Stevens & Dunbould, Huntington.....	5.00	5.30	
30993	H. B. McCord, Auburn.....	5.00	5.09	
30995	W. C. Kentenling, Auburn.....	5.00	5.02	
30997	Ashton Stamon, Auburn.....	5.00	5.09	
31001	Peoples Drug Co., Fort Wayne.....	5.00	5.24	

## ASPIRIN—ILLEGAL.

Laboratory No.	Manufacturer or Retailer.	Grains Per Tablet		Remarks.
		Label.	Found.	
30345	Sent in from Markleville.....	5.00	None...	No aspirin present.
30644	J. W. Stokes, Indianapolis.....	5.00	None...	No aspirin present.
30646	Huder Drug Co., Indianapolis.....	5.00	None...	No aspirin present.
30696	American Drug Co., South Bend.....	5.00	None...	Acetanilid present.
30697	L. Landen Co., South Bend.....	5.00	None...	Starch present.
30730	J. E. Veach, Oakville.....	5.00	None...	No aspirin present.
30770	F. Mueller, Indianapolis.....	5.00	None...	Acetanilid present.
30781	West Side Pharmacy, Terre Haute.....	5.00	None...	Starch present.
30787	J. C. Gillis, Terre Haute.....	5.00	None...	Starch present.
30794	E. F. Smith, Indianapolis.....	5.00	None...	Acetanilid present.
30799	C. Heitkam, Indianapolis.....	5.00	None...	Acetanilid present.
30961	Deam & Spivey, Deatur.....	5.00	None...	No aspirin present.

## LINSEED OIL.

Twenty-six samples of linseed oil were examined of which 10 or 38.5% were adulterated, in every case by the addition of mineral oil. These samples were examined under the Linseed Oil law, the enforcement of which is invested with the State Board of Health.

## LINSEED OIL.

Laboratory No.	Manufacturer or Retailer.	Where Collected.	Saponification Number.	Hexabromides.	Remarks.
30232	By-Lo Stores Co. ....	Muncie. ....	189.7	27.7	Legal.
30233	By-Lo Stores Co. ....	Muncie. ....	192.2	26.6	Legal.
30300	O. L. Jones. ....	Greencastle. ....	192.3	28.4	Legal.
30358	Sent in from. ....	Madison. ....	135.7		Illegal.
30359	Sent in from. ....	Madison. ....	109.0		Illegal.
30360	Sent in from. ....	Madison. ....	133.6		Illegal.
30361	Sent in from. ....	Madison. ....	102.8		Illegal.
30361a	Sent in from. ....	Madison. ....	136.5	18.3	Illegal.
30362	Sent in from. ....	Madison. ....	140.8		Illegal.
30362a	Sent in from. ....	Evansville. ....	188.1	25.1	Legal.
30363	Sent in from. ....	Madison. ....	119.1		Illegal.
30712	Omer Havens. ....	Indianapolis. ....	186.0	25.52	Legal.
30724	George Geisling. ....	Indianapolis. ....	190.9	39.40	Legal.
30725	Sent in from. ....	Madison. ....	183.6	39.45	Legal.
30726	Sent in from. ....	Madison. ....	185.3	43.11	Legal.
30727	Sent in from. ....	Madison. ....	183.6	42.35	Legal.
30728	Sent in from. ....	Madison. ....	183.6	41.11	Legal.
30729	M. J. Thompson. ....	Indianapolis. ....	189.6	43.58	Legal.
30759	Indianapolis Paint & Color Co. ....	Indianapolis. ....	181.0	32.4	Legal.
30760	Walter Margason. ....	Noblesville. ....	122.5		Illegal.
30858	Roy Lively. ....	Heltonville. ....	63.2		Illegal.
31078	F. M. Whitesell, Hagerstown. ....	Hagerstown. ....	192.3	36.2	Illegal.
31082	H. S. Harriman. ....	Indianapolis. ....	192.3	31.68	Legal.
31092	Mack Thomson. ....	Indianapolis. ....	192.3	36.4	Legal.
31093	Mack Thomson. ....	Indianapolis. ....	190.9	24.14	Legal.
31215	C. H. True. ....	Indianapolis. ....	186.2	33.7	Legal.

The illegal samples of linseed oil contain mineral oil.

## PATENT MEDICINES.

Twenty samples of patent medicine were examined and the results are shown in the following table:

## PATENT MEDICINES.

Laboratory No.	Classification.	Manufacturer or Detaller.	Remarks.
30318 30321 30322	Cordial Rawleigh's Pain Relief Rawleigh's Cough Syrup	Frazier Bros., Kokomo Miller Davis, Terre Haute Miller Davis, Terre Haute	The official mixture of sassafras and opium. Apparently, this is an extract of capsicum, alcohol and water. From the order and taste, this preparation is probably the ordinary cough syrup that contains white pine, wild cherry, Balm of Gilead Buds, spikenard root, etc.
30323 30326	Gingerine Rawleigh's And Pain Oil	Frazier Bros., Kokomo Miller Davis, Terre Haute	Apparently a weak tincture of ginger.
30327	Rawleigh's Pain Relief	Miller Davis, Terre Haute	A simple solution containing alcohol, oil of mustard and oil of wintergreen.
30350 30420 30467	Liniment Amolex Cough Syrup	Sent in from Marion Freel and Mason, Marion Sent in from Indianapolis	A simple solution containing alcohol, chloroform, oil of cinnamon and camphor. This is a solution of wood tar in gasoline. Salicylic acid, oil of wintergreen, alcohol and water present.
30710 30711	Cough and Cold Remedy Marlx	John Bernhart, Fort Wayne Marlx Company, Fort Wayne	Apparently this is a solution of tar and sugar containing some chloroform. Formula submitted: Hops, sugar and vinegar. Formula submitted: Bicarbonate of Soda, Aromatic Spirit of Ammonia, Spirit of Chloroform, Tincture Gentian Compound and Glycerine.
30714 30744 30751 30752 30753 30754 30882 30930 30931	Cough Syrup Ointment Chlorzone Foot Powder Obesity Pills Obesity Pills Tobacco Cure Cold Capsules Cough Syrup	The Tar Ex Co., Fort Wayne Sent in from Indianapolis Russell Wilson, Indianapolis C. T. Coltesser, Fort Wayne Sent in from Indianapolis Sent in from Indianapolis Sent in from Indianapolis Sent in from Indianapolis Sent in from Indianapolis	Formula submitted: Syrup, oil of sassafras and oil of tar. This salve is apparently nothing but perfumed petrolatum. This is the ordinary emulsion of cresol in soap and water. Boric acid and salicylic acid present. Principally aloes. These tablets apparently consist of extract of bladderwrack. This is a dilute solution of silver nitrate. The contents of these are essentially quinine. Apparently, this is the official compound syrup of White Pine with the chloroform and morphine omitted.

## QUININE.

Laboratory No.	Sent in from.	Remarks.
30356	Terre Haute	Sample does not comply with U. S. P. This sample responds to all U. S. P. tests for quinine. The contents respond to all the U. S. P. tests for quinine. These capsules are entirely aspirin.
30466	Lafayette	
30928	Indianapolis	
31087	Indianapolis	

## SPIRIT OF CAMPHOR.

Laboratory No.	Manufacturer or Retailer.	Per Cent U. S. P.	Remarks.
27914	J. V. Barbor & Co., Farmersburg		Misbranded. Illegal.
30714	Owl Drug Store, Bedford	117.5	Legal.
30720	B. Williams, Bedford	108.3	Legal.
30723	Dodd & Douthitt, Bedford	106.6	Legal.
30727	Beddor-Christler, Bedford	105.8	Legal.
30736	West Baden Hotel Pharmacy, West Baden	103.3	Legal.
30737	Miller and Moore, West Baden	107.5	Legal.
30749	P. Gelsler, New Albany	110.0	Legal.
30754	F. Mason, Jeffersonville	105.0	Legal.

## TINCTURE OF IODINE.

Laboratory No.	Manufacturer or Retailer.	Per Cent U. S. P.	Remarks.
30663	L. Kramer, Michigan City	99.2	Below standard.
30667	Ohming Drug Store, Michigan City	109.0	Legal.
30668	W. Woodson, Michigan City	91.1	Below standard.
30669	W. Zahn, Michigan City	85.0	Below standard.
30672	E. Moran, Michigan City	97.5	Below standard.
30676	Lion Drug Store, Laporte	92.8	Below standard.
30678	C. E. Luedtke, Laporte	105.3	Legal.
30680	Red Cross Pharmacy, Laporte	86.0	Below standard.
30682	Drug Craft, Laporte	104.2	Legal.
30684	Weiler Drug Co., Elkhart	111.3	Legal.
30686	Housworth Bros., Elkhart	88.7	Below standard.
30688	Clem Drug Co., Elkhart	109.7	Legal.
30690	L. Buchman, Elkhart	101.2	Legal.
30699	Wiles Drug Co., Bloomington	102.3	Legal.
30703	T. J. Penrod, Bloomington	97.2	Below standard.
30707	J. C. Vermilga, Bloomington	99.0	Below standard.
30712	R. J. Bryant, Bloomington	100.9	Legal.
30715	Owl Drug Store, Bedford	93.5	Below standard.
30718	B. Williams, Bedford	102.3	Legal.
30726	Beddor & Chrisher, Bedford	100.9	Legal.
30730	A. H. Miller, Huntingburg	95.4	Below standard.
30732	O. Hancock, French Lick	97.2	Below standard.
30733	Sherrod & Lindley, West Baden	85.8	Below standard.
30735	W. Baden Springs Hotel, West Baden	106.0	Legal.
30741	City Drug Store, French Lick	100.9	Legal.
30747	Callahan Drug Store, New Albany	107.5	Legal.
30752	B. Doolittle, Jeffersonville	98.3	Below standard.

## TOILET PREPARATIONS.

The results of the analyses of 24 samples of toilet preparations purchased for the most part at five and ten cent stores are shown in the following table.



## TOILET PREPARATIONS.

Laboratory No.	Article.	Manufacturer or Retailer.	Remarks.
30191	Witch Hazel and Lemon Cream...	Craft and Co., Indianapolis	A tragacanth jelly flavored with lemon.
30192	Tar Shampoo.....	Craft and Co., Indianapolis	A solution of soft soap and tar.
30193	Florida Water.....	Craft and Co., Indianapolis	Wood alcohol absent.
30194	Cucumber Cream...	Craft and Co., Indianapolis	A gum tragacanth jelly.
30195	Bay Rum Lotion...	Craft and Co., Indianapolis	Wood alcohol absent.
30196	Almond and Benzoin Cream.....	Craft and Co., Indianapolis	A tragacanth jelly flavored with almonds.
30197	Hair Tonic.....	Craft and Co., Indianapolis	Wood alcohol absent.
30315	Florida Water.....	Kresge 5 & 10 Cent Store, Indianapolis.	Wood alcohol absent.
30316	Liquid Shampoo...	Kresge 5 & 10 Cent Store, Indianapolis.	A colored solution of soft soap.
30317	Violet Witch Hazel	Kresge 5 & 10 Cent Store, Indianapolis.	Wood Alcohol Absent.
30318	Almond Cream.....	Kresge 5 & 10 Cent Store, Indianapolis.	A tragacanth jelly flavored with almond.
30320	Hair Tonic.....	Kresge 5 & 10 Cent Store, Indianapolis.	Wood alcohol absent.
30321	Cucumber Cream...	Kresge 5 & 10 Cent Store, Indianapolis.	A gum tragacanth jelly.
30322	Bay Rum Lotion...	Kresge 5 & 10 Cent Store, Indianapolis.	Wood alcohol absent.
30323	Witch Hazel.....	Craft and Co., Indianapolis	Wood alcohol absent.
30324	Toilet Water.....	Kresge 5 & 10 Cent Store, Indianapolis.	Perfumed Water.
30325	Cream of Lemon...	Kresge 5 & 10 Cent Store, Indianapolis.	A gum tragacanth jelly flavored with lemon.
30326	Toilet Water.....	Craft and Co., Indianapolis	Simply perfumed water.
30327	Liquid Shampoo...	Craft and Co., Indianapolis	Colored solution of soft soap.
30355	Face Powder.....	Sent in from Indianapolis...	No adulterants present.
30470	Vanishing Cream...	Sent in from Indianapolis...	An emulsion of stearic acid, soap and water.
30483	Massage Cream....	Sent in from Indianapolis...	A simple cocoa butter ointment.
30758	Massage Powder...	Sent in from Indianapolis...	Sodium carbonate, alum and red pepper present.
30857	Hair Straightner...	Dr C. A. Lucas, Indianapolis	A pasty mixture of soap and caustic soda.

## MISCELLANEOUS DRUG SAMPLES.

Thirty-seven miscellaneous drugs in almost every case sent in by physicians were examined during the year. The results of the analyses are shown on the following table:

## MISCELLANEOUS DRUG SAMPLES.

Laboratory No.	Article.	Manufacturer or Retailer.	Remarks.
29061	Alcohol.....	Sent in from Connerville.....	Legal.
30199	Unknown Substance.....	Sent in from Indianapolis.....	Black granular substance with odor of opium. Extract gives all tests for morphine.
30201	Unknown Powder.....	Sent in from Indianapolis.....	Sample is morphine salt.
30239	Cutting Oil.....	Warner Gear Co., Muncie.....	No organisms present.
30240	Cutting Oil.....	Warner Gear Co., Muncie.....	Staphylococcus pyogenes aureus present.
30319	Morphine Tablets.....	London Drug Co., South Bend.....	Atropine absent.
30338	Soap.....	Sent in from Mishawaka.....	No foreign ingredients detected.
30351	Unknown Powder.....	Dr. C. C. Ray, Arcadia.....	No arsenic, Paris green nor copper present.
30352	Unknown Solution.....	J. H. Prather, Sandborn.....	No heavy metals nor alkaloids present.
30368	Badli Kill.....	White River Creamery Co., Muncie.....	A solution of chlorine.
30599	Prescription.....	Sent in from Whitestown.....	Bromides present. Prescription calls for ammonium chloride, but no bromides.
30733	Roach Paste.....	Sent in from North Vernon.....	The essential ingredient of this preparation is phosphorus.
30735	Tablets.....	Sent in from Whitestown.....	Tablets are apparently composed of magnesium salicylate with trace of acetic acid.
30736	Insect Powder.....	Sent in from Center.....	Naphthalene and sulphur present.
30737	Tartar Emetic.....	Sent in from Carmel.....	Complies with U. S. P. requirements.
30742	Golden Seal.....	Sent in from Irwood.....	This powder is hydrastis.
30745	Unknown Mixture.....	Sent in from Odon.....	Appears to be suspension of barium sulphate in solution of zinc sulphate.
30746	Veronal Tablets.....	Sent in from Indianapolis.....	These tablets are true veronal and are legal.
30750	Unknown Powder.....	Sent in from Lafayette.....	Entirely arsenic trioxide.
30848	Cream of Tartar.....	Wm. H. Block Co., Indianapolis.....	Legal.
30883	Novocain Tablets.....	Sent in from Bunker Hill.....	Tablet gives all the reactions for novocain and none for quinine as suspected.
30926	Paste Board.....	Sent in from Cayuga.....	Alkaloids absent.
30927	Codain Tablets.....	Sent in from Markleville.....	99 per cent. pure. Legal.
30928	Fly poison.....	Sent in from Pekin.....	Apparently powdered pyrethrum of the U. S. P.
30930	Golden Seal.....	Sent in from Pekin.....	Responds to all U. S. P. tests.
30931	Unknown Solution.....	Sent in from Richmond.....	Apparently paregoric, although sample is too small for identity.
31080	Weed Killer.....	Sent in from Fort Wayne.....	A strong solution of tartar emetic.
31081	Tablet.....	Sent in from Walton.....	Hypodermic morphine tablets.
31086	Unknown Solution.....	Sent in from Princeton.....	A solution of saponifiable oil in ethyl acetate.
31088	Salve.....	Sent in from Princeton.....	Apparently nothing but vaseline.
31090	Salicylic Acid.....	Sent in from Madison.....	Complies with all U. S. P. requirements.
31091	Mercuric Chloride Tablets.....	Sent in from Elkhart.....	These tablets contain mercuric chloride.
31138	Cream of Tartar.....	Wm. H. Block Co., Indianapolis.....	Sample is pure.
31167	Unknown Solution.....	Sent in from Eaton.....	Potassium bromide and sodium bromide present.
31168	Prescription.....	Sent in from Indianapolis.....	Mixture corresponds as closely to written prescription as possible. There is a slight excess of mercuric chloride, but this amount will cause no trouble.
31217	Mineral Oil.....	John A. Brown, Auburn Junction.....	This oil contains no impurities and is true to name.
31228	Sodium Benzoate.....	Star Canning Co., Austin.....	Sample is pure.

## FOOD AND DRUG SAMPLES EXAMINED FOR POISON.

Although the State Board of Health is not interested in toxicological work and makes no analysis except as a matter of courtesy where the criminal use of poison is expected, we have during the year examined 15 samples of foods and drugs to determine the presence or absence of poison. In but one case, a sample of whiskey, was any poison detected. Samples of buttermilk, salt pork, whiskey, cake, candy and bread showed neither arsenic, strychnine or other poisons, although the persons who requested the examination were confident that the products were poisoned usually with criminal intent.

## FOOD AND DRUG SAMPLES EXAMINED FOR POSION.

Laboratory No.	Article.	Sent in from.	Remarks.
30219	Buttermilk.....	Summitville.....	No arsenic nor strychnine present.
30231	Salt Pork.....	Oxford.....	No arsenic nor heavy metals present.
30598	Whiskey.....	Indianapolis.....	No poisons detected.
30600	Candy.....	Lewis.....	No arsenic nor alkaloids present.
30734	Candy.....	Indianapolis.....	No strychnine present.
30738	Cake.....	Brooklyn.....	No arsenic nor alkaloids present.
30743	Unknown solution.....	Warsaw.....	No arsenic nor alkaloids present.
30747	Sheep's Stomach.....	Odon.....	Zinc present.
30749	Contents of Stomach.....	Madison.....	No arsenic nor alkaloids present.
30761	Candy.....	Hartford City.....	No arsenic nor alkaloids present.
31077	Whiskey.....	Rushville.....	Strychnine present.
31079	Bread.....	Laporte.....	No poison detected.
31169	Candy.....	Indianapolis.....	Arsenic and alkaloids absent.
31210	Chicken Feed.....	Aurora.....	No arsenic nor alkaloids present.
31211	Candy.....	Pierceton.....	No arsenic nor alkaloids present.

## PROSECUTIONS.

Sixty-three prosecutions were filed during the year for violation of the pure food and sanitary food laws. In every case a conviction was obtained. Twenty-five of the cases involved the sale of meats containing starch and sulphites. Five dealers were prosecuted for exposing candies. One baker plead guilty to exposing cakes. Three dairymen were fined for selling dirty milk, two for milk containing added water, one for milk below standard in fat and three for handling milk under unsanitary conditions. Two dealers were fined for selling cold stored eggs as fresh. Three grocers plead guilty to selling illegal ciders and one dealer paid a fine for having in his possession jam containing benzoate of soda.

The department files but few cases for violation of the laws believing that the public court is the last place in which to conduct

a pure food or sanitary campaign. The uniform success which attends its appearance in the courts is gratifying for it establishes the fact that judges are in sympathy with the principles which prompted the legislation.

The list which follows includes only the prosecutions filed by inspectors of the departments. Many cases involving a violation of the pure food or sanitary food law was successfully handled by local officials.

The total amount of fines and costs levied during the year amounted to \$1,315.25.

TABLE SHOWING CHARACTER AND NUMBER OF CASES.

<i>Character</i>	<i>Number</i>
Adulterated Oysters.....	2
Exposed Cakes.....	1
Exposed Candies.....	5
Dirty Milk.....	3
Milk Containing Added Water.....	2
Milk Below Standard.....	1
Milk Handled Under Unsanitary Conditions.....	3
Maintaining Unsanitary Conditions.....	4
Meats Containing Starch and Sulphites.....	25
Misbranded Bread.....	1
Misbranded Drugs.....	9
Misbranded Eggs.....	2
Selling Illegal Ciders.....	3
Selling Jam Containing Benzoate of Soda.....	1
Selling Unwholesome Meat.....	1
<hr/>	
Total.....	63

## LIST OF PROSECUTIONS FROM OCTOBER 1, 1915, TO OCTOBER 1, 1916.

County.	Name and Address of Defendant.	Why Prosecuted.	Date of Trial.	Final Disposition.
Allen.....	Peter Echrich, Fort Wayne.....	Selling hamburger containing sulphites.....	2-4-16	Fined \$20.00.
Allen.....	Fred Eckert, Fort Wayne.....	Selling hamburger containing sulphites.....	2-4-16	Fined \$20.00.
Allen.....	Fort Wayne Beef Co., Fort Wayne.....	Selling hamburger containing sulphites.....	2-4-16	Fined \$20.00.
Allen.....	Sam Heller, Fort Wayne.....	Selling hamburger containing sulphites.....	2-4-16	Fined \$20.00.
Allen.....	Lorenz & Harsham, Fort Wayne.....	Selling sausage containing sulphites.....	2-4-16	Fined \$20.00.
Allen.....	National Meat Market, Fort Wayne.....	Selling sausage containing sulphites.....	2-4-16	Fined \$20.00.
Allen.....	Joseph Netterfield, Fort Wayne.....	Selling sausage containing sulphites.....	2-4-16	Fined \$20.00.
Allen.....	Frank Parrott, Fort Wayne.....	Selling sausage containing sulphites.....	2-4-16	Fined \$20.00.
Allen.....	Herman Scheele, Fort Wayne.....	Selling sausage containing sulphites.....	2-4-16	Fined \$20.00.
Allen.....	L. M. Stoffel, Fort Wayne.....	Selling sausage containing sulphites.....	2-4-16	Fined \$20.00.
Allen.....	L. M. Stoffel, Fort Wayne.....	Selling sausage containing sulphites.....	2-4-16	Fined \$20.00.
Allen.....	L. R. Welker, Fort Wayne.....	Selling hamburger containing sulphites.....	2-4-16	Fined \$20.00.
Allen.....	George E. Rapp, Hartford City.....	Selling meat containing sulphites.....	3-31-16	Fined \$17.70.
Blackford.....	E. E. Clark, Garrett.....	Selling hamburger containing sulphites.....	12-8-15	Fined \$18.30.
Dekalb.....	Ross and Hays, Garrett.....	Selling hamburger containing sulphites.....	12-8-15	Fined \$18.30.
Dekalb.....	Walter Catron, Muncie.....	Selling milk containing added water.....	7-18-16	Fined \$20.00.
Elkhart.....	M. Shookman, Goshen.....	Selling hamburger containing sulphites.....	2-15-16	Fined \$20.00.
Elkhart.....	Peter Poleziones, Goshen.....	Selling exposed candy.....	1-7-16	Fined \$20.00.
Elkhart.....	E. J. Sumitoner, Goshen.....	Operating under insanitary conditions.....	7-23-16	Fined \$20.00.
Grant.....	Wilson J. Curfman, Marion.....	Selling meat containing sulphites.....	3-22-16	Fined \$20.00.
Greene.....	Martin L. Johnson, Marion.....	Selling misbranded drug.....	10-12-15	Fined \$31.55.
Huntington.....	D. B. Rush, Bloomfield.....	Selling meat containing sulphites.....	3-20-16	Fined \$17.00.
Jefferson.....	John Black, Warren.....	Selling milk below standard and containing dirt.....	12-15-15	Fined \$19.00.
Johnson.....	Johnson County Serum Co., Franklin.....	Selling unwholesome meat.....	10-2-15	Fined \$15.00.
Knox.....	Lawrence Little, Vincennes.....	Selling dirty milk.....	11-19-15	Fined \$20.00.
Lake.....	Wm. Ladra, Gary.....	Returning dirty milk cans unwashed.....	3-29-16	Fined \$23.10.
Lake.....	Whulich & Yonavich, Gary.....	Returning dirty milk cans unwashed.....	3-29-16	Fined \$23.10.
Lake.....	Spirodon Comanoltz, Gary.....	Maintaining a nuisance—dirty restaurant.....	3-29-16	Fined \$23.10.
Lake.....	Diamond Grocery Co., East Chicago.....	Selling meat containing sulphites.....	3-29-16	Case continued indefinitely.
Lake.....	Sam Peters, Gary.....	Selling hamburger containing sulphites.....	3-28-16	Fined \$22.50.
Lake.....	Ben Reich, Gary.....	Maintaining an unsanitary restaurant.....	11-10-15	Fined \$23.00.
Marion.....	Dick Crowe, Indianapolis.....	Selling cold storage eggs improperly stamped.....	11-11-15	Fined \$23.00.
Marion.....	W. R. Lutler, Indianapolis.....	Selling illegal cider.....	9-6-16	Fined \$20.00.
Marion.....	William Ruthart, Indianapolis.....	Selling illegal cider.....	9-6-16	Fined \$20.00.
Marion.....	John Smith, Indianapolis.....	Selling unsanitary drinking glasses.....	9-8-16	Fined \$20.00.
Marion.....	Sam Davis, Indianapolis.....	Selling illegal cider.....	9-6-16	Fined \$20.00.
Marion.....	Henry Huder, Indianapolis.....	Selling misbranded aspirin.....	2-21-16	Fined \$22.50.
Marion.....	Henry Huder, Indianapolis.....	Selling misbranded aspirin.....	2-17-16	Fined \$22.50.

## LIST OF PROSECUTIONS FROM OCTOBER 1, 1915, TO OCTOBER 1, 1916—Continued.

County.	Name and Address of Defendant.	Why Prosecuted.	Date of Trial.	Final Disposition.
Marion	F. Mueller, Indianapolis.	Selling misbranded aspirin.	2-14-16	Fined \$22.50.
Marion	E. F. Smith, Indianapolis.	Selling misbranded aspirin.	2-2-16	Fined \$22.50.
Marion	I. F. Stokes, Indianapolis.	Selling misbranded aspirin.	2-2-16	Fined \$22.50.
Marion	Bills & Bontcher, Indianapolis.	Selling misbranded aspirin.	12-15-15	Fined \$24.50.
Marion	George Kraft & Co., Indianapolis.	Selling misbranded eggs.	12-15-15	Fined \$24.50.
Marion	C. Heltsam, Indianapolis.	Selling exposed candy.	1-31-16	Fined \$22.50.
Marion	George Katche, Indianapolis.	Selling misbranded aspirin.	1-31-16	Fined \$22.50.
Marion	Michael Manella, Indianapolis.	Exposing cakes at soda fountain.	1-22-16	Fined \$22.00.
Marion	Hattie Egan, Indianapolis.	Selling adulterated oysters.	1-22-16	Fined \$23.00.
Marion	George Nicholson, Indianapolis.	Selling adulterated oysters.	7-7-16	Fined \$22.00.
Noble	E. F. Monn & Son, Indianapolis.	Selling jam containing benzoate.	3-25-16	Fined \$27.50.
Noble	George J. Clark, Kendallville.	Selling hamburger containing sulphites.	12-8-15	Fined \$20.00.
Noble	J. S. Clark, Kendallville.	Selling hamburger containing sulphites.	12-8-15	Fined \$20.00.
Noble	Swartz & Shook, Kendallville.	Selling hamburger containing sulphites.	12-8-15	Fined \$20.00.
St. Joseph	A. Stuyverholder, South Bend.	Selling plain bread for gluten.	10-1-15	Fined \$20.00.
Vanderburg	David Schlag, Evansville.	Transferring milk in dusty street.	11-5-15	Fined \$20.00.
Vanderburg	David Schlag, Evansville.	Selling dirty milk.	11-5-15	Fined \$20.00.
Vanderburg	Thomas Shields, Evansville.	Selling watered milk.	2-23-16	Fined \$18.50.
Vermillion	Smith Grocery Co., Clinton.	Selling hamburger containing sulphites.	1-25-16	Fined \$18.50.
Vigo	Alice Tuttwiler, Clinton.	Selling exposed candies.	1-25-16	Fined \$18.50.
Vigo	J. C. Gills, Terre Haute.	Selling misbranded aspirin.	1-26-16	Fined \$21.00.
Vigo	S. Locke, Terre Haute.	Selling misbranded aspirin.	1-21-16	Fined \$21.00.
Vigo	C. M. Mooney, Terre Haute.	Selling sausage containing starch.	1-27-16	Fined \$21.00.
Vigo	John Rassel, Terre Haute.	Selling weinerwurst containing starch.	1-27-16	Fined \$21.00.

## SANITARY INSPECTIONS.

The value of the work of the sanitary inspector who visits the grocery store and butcher shop becomes more pertinent every year. The work which when first undertaken was viewed with disfavor by the proprietor whose shop was being inspected, and which aroused little attention among consumers, is now accepted as a necessary feature of the manufacture and distribution of food. The manufacturer expects his shop to be visited and is proud of the opportunity given him to show the up-to-date methods he uses, the superior character of his equipment and his advanced ideas in matters of cleanliness and sanitation.

In the enforcement of the sanitary food law, the food inspectors visited 422 cities and towns having a total population of one and one-half millions. In many cases but one inspection visit was made during the year. This was particularly true of the small towns. A reasonable enforcement of the sanitary food law would not be secured by such infrequent visits if it were not for the fact that every local health officer is a deputy food inspector.

Nine thousand, four hundred and one establishments were visited during the year, including dairies, groceries, meat markets, bakeshops, hotels and restaurants, ice cream factories, saloons and other manufacturing and distributing establishments handling food. But 62 places were reported as excellent, 4689 were rated as good, 4183 as fair, 357 as poor and 110 as bad. Sixty of the 110 bad places were dairies, 378 of which were visited by the inspectors. As has always been the case, the inspectors found the dairies to be less sanitary than any other class of places visited. But 76 dairies were rated good, 173 were fair only and 69 were poor.

Six hundred and twenty-six meat markets were rated good, 497 were fair, 27 poor and 4 bad. 1815 of the 3446 grocery stores were rated good. But 7 were condemned as bad. Of the 152 saloons visited none were rated excellent, 17 were in good condition, 105 were fair only, 23 were poor and 7 bad. The sanitary condition of saloons is unsatisfactory. During the coming year food inspectors will give special attention to this class of establishments, and saloon keepers, like butchers, bakers and restaurant proprietors will either clean up or shut up.

A special study has been made of the hotels of the state, 383 of which were inspected both to determine their condition with reference to the sanitary food law and the observance of the ninety-

nine inch sheet law. Of the 383 hotels inspected, 153 were rated good, 220 fair, 9 were poor and one only was bad. In general the hotel situation is greatly improved over conditions observed but a few years ago. Sanitary toilets have been constructed and bath rooms installed in nearly every hotel. The kitchens are for the most part well equipped and properly conducted. The dining rooms are sanitary and cheerful. This last condition does not however, apply to many country hotels where heating facilities are inadequate, and windows are too small for proper lighting. Special note was made of the condition of the clothing of hotel employees. In the modern hotels the cooks and waiters were suitably clothed, but in the smaller places the dress of the help in the kitchen was untidy and frequently dirty. Dirty clothes are but an evidence of slovenly habits. They are no longer any more acceptable in the hotel kitchen than they are behind the desk in the lobby.

The long sheet law is not obeyed. Seventy-five per cent of the hotels were still using the short sheet instead of the regulation 99 by 81 inch sheet. The excuse usually offered was that the sheet had shrunk in washing. This of course is false. Sheets will shrink a few inches but they will not shrink two feet. The traveling public will be pleased with the statement that with few exceptions the springs and mattresses were in good condition.

CITIES AND TOWNS VISITED AND INSPECTED, 1915-1916.

City or Town.	County.	Number Times Inspected.	Population.
Acton.....	Marion.....	1	460
Adams.....	Decatur.....	2	378
Albion.....	Noble.....	1	1,213
Alexandria.....	Madison.....	2	5,096
Alert.....	Decatur.....	1	206
Alpine.....	Fayette.....	1	30
Allensville.....	Switzerland.....	2	52
Anderson.....	Madison.....	4	23,626
Andersonville.....	Franklin.....	2	348
Andrews.....	Huntington.....	1	957
Angola.....	Steuben.....	1	2,840
Antioch.....	Switzerland.....	1	
Arcadia.....	Hamilton.....	3	990
Arlington.....	Rush.....	3	450
Atlanta.....	Hamilton.....	3	876
Attica.....	Fountain.....	1	3,335
Auburn.....	DeKalb.....	4	4,179
Aurora.....	Dearborn.....	2	4,790
Avilla.....	Noble.....	1	579
Azalia.....	Bartholomew.....	1	110
Banquo.....	Huntington.....	1	75
Bascom.....	Ohio.....	2	90
Batesville.....	Ripley.....	1	2,531
Bath.....	Franklin.....	1	125
Bedford.....	Lawrence.....	2	10,016



## CITIES AND TOWNS VISITED AND INSPECTED, 1915-1916.

City or Town.	County.	Number Times Inspected.	Population.
Benham.....	Ripley.....	1	135
Bennington.....	Switzerland.....	1	127
Berne.....	Adams.....	1	1,316
Bloomfield.....	Greene.....	2	2,069
Bloomington.....	Monroe.....	4	10,019
Blue Ridge.....	Shelby.....	1	200
Bluffton.....	Wells.....	2	5,237
Boggstown.....	Shelby.....	1	814
Borden.....	Clark.....	1	350
Boston.....	Wayne.....	1	122
Boxley.....	Hamilton.....	1	100
Boyleston.....	Clinton.....	1	120
Brazil.....	Clay.....	1	10,115
Bright.....	Dearborn.....	1	128
Bristol.....	Elkhart.....	1	535
Brook.....	Newton.....	1	1,067
Brookfield.....	Shelby.....	1	300
Brookville.....	Franklin.....	3	2,169
Brownstown.....	Jackson.....	1	1,492
Brynesville.....	Lawrence.....	1	75
Buenavista.....	Monroe.....	1	75
Bunker Hill.....	Miami.....	2	668
Burnettsville.....	White.....	1	489
Burney.....	Decatur.....	1	200
Butlerville.....	Jennings.....	1	400
Cambridge City.....	Wayne.....	1	2,237
Campbellsburg.....	Washington.....	1	668
Carbondale.....	Warren.....	1	65
Carmel.....	Clark.....	2	626
Carthage.....	Rush.....	1	873
Cedar Grove.....	Franklin.....	1	185
Centersquare.....	Switzerland.....	2	64
Centerville.....	Wayne.....	1	1,019
Charlestown.....	Dearborn.....	1	75
Chesterstown.....	Porter.....	1	1,400
Cicero.....	Hamilton.....	1	41
Clarkshill.....	Tippecanoe.....	1	463
Clearspring.....	Jackson.....	1	
Clifty.....	Decatur.....	1	211
Clinton.....	Vermillion.....	1	7,884
Cochran.....	Dearborn.....	2	858
Columbus.....	Bartholomew.....	2	9,153
Connersville.....	Fayette.....	1	8,188
Columbia City.....	Whitley.....	2	3,683
Converse.....	Miami.....	2	1,164
Cortland.....	Jackson.....	1	166
Corydon.....	Harrison.....	1	1,703
Correct.....	Ripley.....	1	32
Covington.....	Fountain.....	1	2,069
Cross Plains.....	Ripley.....	1	198
Crawfordsville.....	Montgomery.....	5	10,731
Crothersville.....	Jackson.....	1	1,038
Crown Point.....	Lake.....	2	810
Cyclone.....	Clinton.....	1	50
Clem Corner.....	Franklin.....	1	
Dayton.....	Ripley.....	2	80
Dale.....	Spencer.....	1	583
Daleville.....	Delaware.....	1	650
Danville.....	Boone.....	2	1,640
Darlington.....	Montgomery.....	2	780
Decatur.....	Adams.....	2	4,631
Delphi.....	Carroll.....	3	2,161
Denver.....	Miami.....	1	850
Dillsboro.....	Dearborn.....	1	425
Dora.....	Wabash.....	1	75
Dover.....	Dearborn.....	4	
Dudleytown.....	Jackson.....	1	75
Dugger.....	Sullivan.....	1	1,226
Dunkirk.....	Jay.....	1	3,031
Eagletown.....	Hamilton.....	1	275
East Chicago.....	Lake.....	5	26,938
East Enterprise.....	Switzerland.....	2	150

## CITIES AND TOWNS VISITED AND INSPECTED, 1915-1916

City or Town.	County.	Number Times Inspected.	Population.
Eaton.....	Delaware.....	1	1,428
Edinburg.....	Johnson.....	1	2,040
Elizaville.....	Boone.....	2	100
Elkhart.....	Elkhart.....	2	21,327
Elizabethtown.....	Bartholomew.....	1	350
Ellettsville.....	Monroe.....	1	676
Elnora.....	Davless.....	1	961
Elrod.....	Ripley.....	1	150
Elwood.....	Madison.....	4	11,028
Evansville.....	Vanderburg.....	3	76,427
Ewing.....	Jackson.....	1	750
Fairfield.....	Franklin.....	1	200
Fairland.....	Shelby.....	1	600
Fairmount.....	Grant.....	1	2,506
Fairview.....	Switzerland.....	2	100
Falmouth.....	Rush.....	1	200
Farmland.....	Randolph.....	1	907
Fenns.....	Shelby.....	2	50
Fishers.....	Hamilton.....	1	188
Ferdinand.....	Dubois.....	1	827
Fickle.....	Clinton.....	1	25
Five Points.....	Marion.....	1	
Flat Rock.....	Shelby.....	2	350
Florence.....	Switzerland.....	1	240
Forest Hill.....	Decatur.....	1	111
Fort Wayne.....	Allen.....	5	73,338
Fortville.....	Hancock.....	2	1,174
Foster.....	Warren.....	1	50
Fountaintown.....	Shelby.....	1	350
Fowlertown.....	Grant.....	2	293
Frankfort.....	Clinton.....	7	9,339
Franklin.....	Johnson.....	2	4,747
Freeport.....	Shelby.....	1	95
French Lick.....	Orange.....	1	1,803
Freetown.....	Jackson.....	1	350
Friendship.....	Ripley.....	1	250
Gadsden.....	Boone.....	2	50
Galveston.....	Cass.....	1	658
Gary.....	Lake.....	6	32,802
Garrett.....	DeKalb.....	5	4,613
Gas City.....	Grant.....	2	3,224
Gaston.....	Delaware.....	1	638
Gaynorsville.....	Decatur.....	1	25
Geneva.....	Adams.....	1	1,140
Glenwood.....	Payette.....	2	266
Goldsmith.....	Tipton.....	1	250
Goshen.....	Elkhart.....	4	8,864
Gosport.....	Owen.....	1	776
Government Dam.....		1	
Grammer.....	Bartholomew.....	1	125
Grayford.....	Jennings.....	1	35
Greendale.....	Dearborn.....	1	697
Greenfield.....	Hancock.....	1	4,448
Greenhill.....	Warren.....	1	170
Greensburg.....	Decatur.....	2	5,610
Greentown.....	Howard.....	1	1,166
Greenwood.....	Johnson.....	2	1,608
Groomsville.....	Tipton.....	1	40
Gwynneville.....	Shelby.....	1	150
Goodland.....	Newton.....	1	1,105
Hammond.....	Lake.....	5	25,195
Hanfield.....	Grant.....	1	100
Haron.....	Switzerland.....	1	
Harrison.....	Decatur.....	1	
Hartford City.....	Blackford.....	3	6,562
Hartsville.....	Bartholomew.....	1	358
Hemlock.....	Howard.....	1	175
Henderson.....	Rush.....	2	70
Henryville.....	Clark.....	1	480
Highland.....	Lake.....	1	304
Hillsburg.....	Clinton.....	1	280
Hope.....	Bartholomew.....	1	1,223

## CITIES AND TOWNS VISITED AND INSPECTED, 1915-1916.

City or Town.	County.	Number Times Inspected.	Population.
Holton.....	Ripley.....	1	350
Homer.....	Rush.....	1	150
Horace.....	Decatur.....	1	50
Horton.....	Hamilton.....	2	
Huntingburg.....	Dubois.....	3	2,464
Huntington.....	Huntington.....	1	10,662
Idaville.....	White.....	1	650
Ijamsville.....	Wabash.....	1	125
Independence.....	Warren.....	1	300
Indianapolis.....	Marion.....	20	265,890
Indiana Harbor.....	Lake.....	2	
Ingalls.....	Madison.....	1	322
Jeffersonville.....	Clark.....	2	10,412
Jolietville.....	Hamilton.....	2	250
Jonesboro.....	Grant.....	1	1,573
Jonesville.....	Bartholomew.....	2	213
Judyville.....	Warren.....	1	75
Kendallville.....	Noble.....	5	5,781
Kennard.....	Henry.....	1	449
Kentland.....	Jefferson.....	1	1,209
Kempton.....	Tipton.....	1	600
Keystone.....	Wells.....	1	242
Kirklin.....	Clinton.....	2	699
Kokomo.....	Howard.....	5	20,210
Knightstown.....	Henry.....	1	2,008
Kurtz.....	Jackson.....	2	200
Kramer.....	Warren.....	1	212
Ladoga.....	Montgomery.....	1	1,148
Lafayette.....	Tippecanoe.....	3	21,061
Lafontaine.....	Wabash.....	1	683
Lagrange.....	Lagrange.....	1	1,772
Laketon.....	Wabash.....	1	600
Lamar.....	Spencer.....	1	60
Lamong.....	Hamilton.....	1	18
Lancaster.....	Jefferson.....	1	110
Landessville.....	Grant.....	1	
Lapel.....	Madison.....	1	1,045
Laporte.....	Laporte.....	8	12,266
Laurel.....	Franklin.....	1	503
Lawrenceburg.....	Dearborn.....	1	3,930
Lawrenceville.....	Dearborn.....	1	120
Leesville.....	Lawrence.....	1	125
Lebanon.....	Boone.....	4	6,974
Letts.....	Decatur.....	1	200
Letts Corner.....	Decatur.....	1	200
Lewis Creek.....	Shelby.....	2	85
Lewisville.....	Henry.....	1	446
Liberty Center.....	Wells.....	2	351
Linden.....	Montgomery.....	1	556
Linton.....	Greene.....	2	7,321
Logan.....	Decatur.....	1	75
Logansport.....	Cass.....	4	20,470
Lagro.....	Wabash.....	1	463
Laotto.....	Noble.....	1	300
Linconville.....	Wabash.....	1	162
Liberty.....	Union.....	1	1,338
London.....	Shelby.....	1	200
Mace.....	Montgomery.....	1	310
Madison.....	Jefferson.....	1	6,934
Majenica.....	Huntington.....	1	250
Marengo.....	Crawford.....	1	686
Marletta.....	Shelby.....	2	210
Martinsville.....	Morgan.....	1	4,774
Markle.....	Huntington.....	1	820
Markland.....	Switzerland.....	2	200
Matthews.....	Grant.....	2	
Maurice.....	Jackson.....	1	
Marion.....	Grant.....	8	20,369
Maxwell.....	Hancock.....	1	350
Mays.....	Rush.....	2	225

## CITIES AND TOWNS VISITED AND INSPECTED, 1915-1916.

City or Town.	County.	Number Times Inspected.	Population.
McCordsville	Hancock	1	250
Mechanicsburg	Henry	1	175
Medora	Jackson	1	675
Meltzer	Shelby	1	
Metamora	Franklin	1	588
Mexico	Miami	1	521
Michigan City	Laporte	8	21,112
Middlebury	Elkhart	1	600
Middletown	Henry	1	1,175
Miners Corner	Hancock	1	115
Miller	Lake	1	638
Milltown	Fayette	1	586
Minialla	Rush	1	
Minro	Rush	1	770
Milan	Ripley	2	557
Mishawaka	St. Joseph	3	15,046
Mitchell	Lawrence	1	42,68
Milhausen	Decatur	1	211
Mohawk	Hancock	1	200
Monticello	White	1	2,190
Montpelier	Blackford	2	2,786
Monument City	Huntington	1	75
Monroeville	Allen	1	910
Monticello	Shelby	3	622
Moscow	Dearborn	1	424
Mount Airy	Newton	1	231
Mount Etna	Huntington	1	148
Mount Auburn	Wayne	2	120
Mount Carmel	Franklin	1	142
Mount Pleasant	Newton	1	231
Muncie	Delaware	6	25,535
Nebaska	Jennings	1	153
New Albany	Floyd	3	20,629
New Albany	Rush	1	
New Albany	Dearborn	3	375
New Albany	Franklin	1	
New Albany	Bartholomew	1	200
New Albany	St. Joseph	2	1,097
New Albany	Henry	3	11,028
New Albany	Wabash	1	72
New Albany	Kelley	1	225
New Albany	Hancock	1	450
New Albany	Decatur	2	341
New Albany	Montgomery	1	464
New Albany	Rush	1	175
New Albany	Franklin	1	200
New Albany	Huntington	5	5,213
New Albany	Jackson	1	175
New Albany	Shelby	1	
New Albany	Clay	1	
New Albany	Wabash	2	2,428
New Albany	Jennings	1	2,960
New Albany	Cass	2	2,370
New Albany	Franklin	1	956
New Albany	Orange	2	1,367
New Albany	Kelley	4	1,169
New Albany	Orange	1	1,278
New Albany	Switzerland	1	340
New Albany	Washington	1	300
New Albany	Madison	2	1,295
New Albany	Madison	3	800
New Albany	Madison	1	750
New Albany	Madison	1	578
New Albany	Madison	1	1,000
New Albany	Madison	1	1,170
New Albany	Madison	1	1,282
New Albany	Madison	1	25
New Albany	Madison	1	352
New Albany	Madison	1	150
New Albany	Madison	1	50
New Albany	Madison	1	40
New Albany	Madison	4	3,928

## CITIES AND TOWNS VISITED AND INSPECTED, 1915-1916.

City or Town.	County.	Number Times Inspected.	Population.
Poneto .....	Wells .....	1	308
Portland .....	Jay .....	4	5,295
Princeton .....	Gibson .....	5	6,648
Queensville .....	Jennings .....	1	110
Quercus Grove .....	Switzerland .....	1	40
Rainsville .....	Warren .....	1	120
Raleigh .....	Rush .....	2	160
Red Key .....	Jay .....	1	1,714
Reddington .....	Jackson .....	1	125
Remington .....	Jasper .....	1	982
Rennsselaer .....	Jasper .....	1	2,458
Reynolds .....	White .....	1	377
Richland .....	Rush .....	1	119
Richmond .....	Wayne .....	5	24,369
Richvalley .....	Wabash .....	1	175
Rising Sun .....	Ohio .....	2	1,513
Roanoke .....	Huntington .....	1	699
Roann .....	Wabash .....	1	447
Rochester .....	Fulton .....	4	3,364
Rockport .....	Spencer .....	1	2,736
Roll .....	Blackford .....	1	125
Rome City .....	Noble .....	1	436
Rosedale .....	Parke .....	2	1,166
Rugby .....	Bartholomew .....	2	55
Rushville .....	Rush .....	1	5,115
Russiaville .....	Howard .....	1	603
Saint Leon .....	Dearborn .....	3	261
Saint Meinard .....	Spencer .....	1	538
Saint Paul .....	Decatur .....	2	1,050
Saint Peter .....	Franklin .....	1	150
Salem .....	Washington .....	1	2,283
Sandborn .....	Knox .....	1	445
Scipio .....	Jennings .....	1	200
Scircleville .....	Clinton .....	1	300
Scottsburg .....	Scott .....	1	1,669
Seelyville .....	Vigo .....	1	1,188
Sellersburg .....	Clark .....	2	676
Seymour .....	Jackson .....	2	6,305
Sexton .....	Rush .....	2	120
Sharpville .....	Tipton .....	1	550
Shelbyville .....	Shelby .....	3	10,665
Sheridan .....	Hamilton .....	3	1,768
Shirley .....	Hancock .....	2	1,519
Shoals .....	Martin .....	1	1,015
Silver Lake .....	Kosciusko .....	1	493
Sloan .....	Warren .....	1	
Smithland .....	Shelby .....	2	100
South Gate .....	Franklin .....	1	100
South Bend .....	St. Joseph .....	4	63,580
South Whitley .....	Whitley .....	1	1,176
Spencer .....	Owen .....	1	2,150
Spades .....	Ripley .....	1	150
Sparksville .....	Jackson .....	1	140
Spraytown .....	Jackson .....	1	79
State Line .....	Warren .....	1	195
Strawton .....	Hamilton .....	1	89
Sulphur Hill .....	Shelby .....	1	150
Surprise .....	Jackson .....	1	100
Sullivan .....	Sullivan .....	1	4,610
Summitville .....	Madison .....	1	1,387
Sunman .....	Ripley .....	1	353
Switz City .....	Greene .....	1	620
Tampico .....	Jackson .....	1	140
Taylorsville .....	Bartholomew .....	1	450
Terhune .....	Boone .....	1	220
Terre Haute .....	Vigo .....	2	68,897
Tipton .....	Tipton .....	1	4,230
Topeka .....	LaGrange .....	1	650

## CITIES AND TOWNS VISITED AND INSPECTED, 1915-1916.

City or Town.	County.	Number Times Inspected.	Population.
McCordsville . . . . .	Hancock . . . . .	1	250
Mechanicsburg . . . . .	Henry . . . . .	1	175
Medora . . . . .	Jackson . . . . .	1	675
Meltzer . . . . .	Shelby . . . . .	1	
Metamora . . . . .	Franklin . . . . .	1	588
Mexico . . . . .	Miami . . . . .	1	521
Michigan City . . . . .	Laporte . . . . .	8	21,112
Middlebury . . . . .	Elkhart . . . . .	1	600
Middletown . . . . .	Henry . . . . .	1	1,175
Milners Corner . . . . .	Hancock . . . . .	1	115
Miller . . . . .	Lake . . . . .	1	638
Milltown . . . . .	Fayette . . . . .	1	586
Minialla . . . . .	Rush . . . . .	1	
Milroy . . . . .	Rush . . . . .	1	770
Milan . . . . .	Ripley . . . . .	2	557
Mishawaka . . . . .	St. Joseph . . . . .	3	15,046
Mitchell . . . . .	Lawrence . . . . .	1	42,68
Milhausen . . . . .	Decatur . . . . .	1	211
Mohawk . . . . .	Hancock . . . . .	1	200
Monticello . . . . .	White . . . . .	1	2,190
Montpelier . . . . .	Blackford . . . . .	2	2,786
Monument City . . . . .	Huntington . . . . .	1	75
Monroeville . . . . .	Allen . . . . .	1	910
Morristown . . . . .	Shelby . . . . .	3	622
Moreshill . . . . .	Dearborn . . . . .	1	424
Mount Ayr . . . . .	Newton . . . . .	1	231
Mount Etna . . . . .	Huntington . . . . .	1	148
Mount Auburn . . . . .	Wayne . . . . .	2	120
Mount Carmel . . . . .	Franklin . . . . .	1	142
Morocco . . . . .	Newton . . . . .	1	231
Muncie . . . . .	Delaware . . . . .	6	25,535
Nebraska . . . . .	Jennings . . . . .	1	153
New Albany . . . . .	Floyd . . . . .	3	20,629
Neff . . . . .	Rush . . . . .	1	
New Alsace . . . . .	Dearborn . . . . .	3	375
New Bath . . . . .	Franklin . . . . .	1	
Newbern . . . . .	Bartholomew . . . . .	1	200
New Carlisle . . . . .	St. Joseph . . . . .	2	1,097
New Castle . . . . .	Henry . . . . .	3	11,028
New Holland . . . . .	Wabash . . . . .	1	72
New Marion . . . . .	Ripley . . . . .	1	225
New Palestine . . . . .	Hancock . . . . .	2	450
New Point . . . . .	Decatur . . . . .	2	341
New Richmond . . . . .	Montgomery . . . . .	1	464
New Salem . . . . .	Rush . . . . .	1	175
New Trenton . . . . .	Franklin . . . . .	1	200
Noblesville . . . . .	Hamilton . . . . .	5	5,213
Norman Station . . . . .	Jackson . . . . .	1	175
Norristown . . . . .	Shelby . . . . .	1	
North Landing . . . . .	Ohio . . . . .	1	
North Manchester . . . . .	Wabash . . . . .	2	2,428
North Vernon . . . . .	Jennings . . . . .	1	2,960
Oakland City . . . . .	Gibson . . . . .	2	2,370
Oldenburg . . . . .	Franklin . . . . .	1	956
Orleans . . . . .	Orange . . . . .	2	1,367
Osgood . . . . .	Ripley . . . . .	4	1,169
Paoli . . . . .	Orange . . . . .	1	1,278
Patriot . . . . .	Switzerland . . . . .	1	340
Pekin . . . . .	Washington . . . . .	1	300
Pendleton . . . . .	Madison . . . . .	2	1,293
Pennville . . . . .	Jay . . . . .	3	800
Pence . . . . .	Warren . . . . .	1	150
Perkinsville . . . . .	Madison . . . . .	1	318
Peru . . . . .	Madison . . . . .	1	12,996
Petersburg . . . . .	Pike . . . . .	4	2,170
Philadelphia . . . . .	Hancock . . . . .	1	182
Pipe . . . . .	Boone . . . . .	1	25
Pine Village . . . . .	Warren . . . . .	1	352
Pierceville . . . . .	Ripley . . . . .	1	150
Pleasant . . . . .	Switzerland . . . . .	1	50
Pleasant Plain . . . . .	Huntington . . . . .	1	90
Plymouth . . . . .	Marshall . . . . .	4	3,928

## CITIES AND TOWNS VISITED AND INSPECTED, 1915-1916.

City or Town.	County.	Number Times Inspected.	Population.
Poneto .....	Wells .....	1	308
Portland .....	Jay .....	4	5,295
Princeton .....	Gibson .....	5	6,648
Queensville .....	Jennings .....	1	110
Quorcus Grove .....	Switzerland .....	1	40
Rainsville .....	Warren .....	1	120
Raleigh .....	Rush .....	2	160
Red Key .....	Jay .....	1	1,714
Reddington .....	Jackson .....	1	125
Remington .....	Jasper .....	1	982
Rennselaer .....	Jasper .....	1	2,458
Reynolds .....	White .....	1	377
Richland .....	Rush .....	1	119
Richmond .....	Wayne .....	5	24,399
Richvalley .....	Wabash .....	1	175
Rising Sun .....	Ohio .....	2	1,513
Roanoke .....	Huntington .....	1	699
Roann .....	Wabash .....	1	447
Rochester .....	Fulton .....	4	3,364
Rockport .....	Spencer .....	1	2,736
Roll .....	Blackford .....	1	125
Rome City .....	Noble .....	1	436
Rosedale .....	Parke .....	1	1,166
Rugby .....	Bartholomew .....	2	55
Rushville .....	Rush .....	1	5,115
Russiaville .....	Howard .....	1	603
Saint Leon .....	Dearborn .....	3	261
Saint Meinard .....	Spencer .....	1	538
Saint Paul .....	Decatur .....	2	1,050
Saint Peter .....	Franklin .....	1	150
Salem .....	Washington .....	1	2,283
Sandborn .....	Knox .....	1	445
Scipio .....	Jennings .....	1	200
Scircleville .....	Clinton .....	1	300
Scottsburg .....	Scott .....	1	1,669
Seelyville .....	Vigo .....	1	1,188
Sellersburg .....	Clark .....	2	676
Seymour .....	Jackson .....	2	6,305
Sexton .....	Rush .....	2	120
Sharpsville .....	Tipton .....	1	550
Shelbyville .....	Shelby .....	3	10,665
Sheridan .....	Hamilton .....	3	1,768
Shirley .....	Hancock .....	2	1,519
Shoals .....	Martin .....	1	1,015
Silver Lake .....	Kosciusko .....	1	493
Sloan .....	Warren .....	1	
Smithland .....	Shelby .....	2	100
South Gate .....	Franklin .....	1	100
South Bend .....	St. Joseph .....	4	63,580
South Whitley .....	Whitley .....	1	1,176
Spencer .....	Owen .....	1	2,150
Spades .....	Ripley .....	1	150
Sparksville .....	Jackson .....	1	140
Spraytown .....	Jackson .....	1	79
State Line .....	Warren .....	1	195
Strawton .....	Hamilton .....	1	89
Sulphur Hill .....	Shelby .....	1	150
Surprise .....	Jackson .....	1	100
Sullivan .....	Sullivan .....	1	4,610
Summitville .....	Madison .....	1	1,387
Sunman .....	Ripley .....	1	353
Switz City .....	Greene .....	1	620
Tampico .....	Jackson .....	1	140
Taylorsville .....	Bartholomew .....	1	450
Terhune .....	Boone .....	1	220
Terre Haute .....	Vigo .....	2	68,897
Tipton .....	Tipton .....	1	4,230
Topeka .....	LaGrange .....	1	650

## CITIES AND TOWNS VISITED AND INSPECTED, 1915-1916.

City or Town.	County.	Number Times Inspected.	Population.
Union City.....	Randolph.....	1	3,449
Upland.....	Grant.....	1	7,337
Utica.....	Clarke.....	1	426
Urbana.....	Wabash.....	1	280
Vallonia.....	Jackson.....	1	475
Valleene.....	Orange.....	1	104
Valparaiso.....	Porter.....	6	7,337
Van Buren.....	Grant.....	2	1,189
Velpin.....	Pike.....	1	250
Versailles.....	Ripley.....	2	486
Veedersburg.....	Fountain.....	1	1,812
Vevay.....	Switzerland.....	2	1,256
Vincennes.....	Knox.....	2	17,215
Wabash.....	Wabash.....	3	8,717
Waldron.....	Shelby.....	1	480
Walton.....	Dearborn.....	1	579
Warren.....	St. Joseph.....	1	
Waveland.....	Montgomery.....	1	
Warsaw.....	Kosciusko.....	2	4,650
Warrington.....	Hancock.....	1	200
Waterloo.....	DeKalb.....	1	1,167
Washington.....	Davless.....	2	7,854
Waymansville.....	Bartholomew.....	1	150
Waynetown.....	Montgomery.....	1	734
West Baden.....	Orange.....	2	746
Westfield.....	Hamilton.....	2	700
West Lebanon.....	Warren.....	1	642
Westport.....	Decatur.....	1	675
Wheeling.....	Delaware.....	1	100
Whitcomb.....	Franklin.....	1	
Whiteland.....	Johnson.....	1	343
Whiting.....	Lake.....	1	7,887
Willow Branch.....	Hancock.....	1	140
Winchester.....	Randolph.....	2	4,546
Winthrop.....	Warren.....	1	95
Wingate.....	Montgomery.....	1	446
Wolcott.....	White.....	1	873
Winn.....	Franklin.....	1	
Wirt.....	Jefferson.....	1	55
Worthington.....	Greene.....	1	1,732
Yorktown.....	Delaware.....	1	1,000
Yorkville.....	Dearborn.....	2	157
Zionsville.....	Boone.....	1	840
Total population of cities and towns visited.....			1,445,655
Different cities and towns visited.....			422



## SUMMARY OF INSPECTIONS.

Inspections.	Number In- spected.	Number Ex- cellent.	Number Good.	Number Fair.	Number Poor.	Number Bad.
Dairies.....	378	0	76	173	69	60
Grocery stores.....	3,446	18	1,815	1,549	57	7
Meat Markets.....	1,159	5	626	497	27	4
Drug stores.....	707	3	551	143	10	0
Bakeries and confectioneries.....	1,363	14	757	549	34	9
Hotels and restaurants.....	1,513	17	558	849	78	11
Creameries.....	79	1	41	33	3	1
Slaughter houses.....	55	0	19	29	6	1
Ice cream parlors.....	62	0	24	37	1	0
Ice cream factories.....	105	1	30	59	13	2
Bottling works.....	20	0	13	6	1	0
Poultry houses.....	46	0	9	29	8	0
Milk depots.....	74	1	28	38	5	2
Milk plants.....	13	0	5	7	1	0
Flour mills.....	19	0	16	3	0	0
Fish markets.....	41	0	21	15	4	1
Ice and cold storage plants.....	6	0	6	0	0	0
Wholesale groceries.....	14	0	12	2	0	0
Saloons.....	152	0	17	105	23	7
Fruit and vegetable stores.....	15	0	2	9	2	2
Produce companies.....	14	0	5	8	1	0
Cider mill.....	1	0	0	1	0	0
Wholesale drug store.....	1	0	1	0	0	0
Lunch carts.....	1	0	0	1	0	0
Wholesale confectioneries.....	1	0	1	0	0	0
Canning factories.....	96	1	43	36	13	3
Sanitary ice companies.....	2	1	1	0	0	0
Soft drink parlors.....	1	0	0	0	1	0
Potato chip factory.....	1	0	0	1	0	0
Wholesale meat markets.....	2	0	1	1	0	0
Brewing companies.....	2	0	2	0	0	0
Packing plants.....	4	0	3	1	0	0
Dressed beef company.....	1	0	0	1	0	0
Condensed milk plants.....	5	0	5	0	0	0
Wholesale egg store.....	1	0	0	1	0	0
Tea and coffee store.....	1	0	1	0	0	0
Totals.....	9,401	62	4,689	4,183	357	110

## COMPARATIVE STUDY OF SANITARY CONDITIONS.

A comparison of the sanitary conditions of the several classes of establishments visited with the results obtained during the years from 1907 to 1916 inclusive, shows a slight but definite improvement. This fact is the more gratifying because the inspectors are each year insisting upon a more stringent observance of every detail of the sanitary food law.

A study of the table is interesting, but the figures given must be interpreted with the changed sanitary requirements in mind.

## COMPARATIVE STUDY OF SANITARY CONDITIONS IN 1907-1916.

	Year.	Condition.				
		Excel- lent, Per Cent.	Good Per- Cent.	Fair Per Cent.	Poor Per Cent.	Bad Per Cent.
Dairies.....	1907	5.2	16.2	43.5	19.1	15.8
	1908	1.4	14.8	44.1	26.8	12.7
	1909	1.0	20.2	39.5	30.2	8.5
	1910		13.7	42.9	24.3	19.0
	1911	.5	9.5	23.6	35.1	31.1
	1912	.5	3.2	32.4	37.2	26.4
	1913	.3	16.1	43.0	31.8	8.6
	1914	.2	9.0	29.0	36.7	24.3
	1915		23.5	41.1	25.1	10.1
	1916		20.1	45.7	18.2	13.2
Grocery stores.....	1907	4.2	39.0	46.5	8.8	1.4
	1908	2.8	45.5	46.1	44.9	.7
	1909	4.8	53.6	35.6	5.3	1.0
	1910	3.8	60.3	30.8	4.6	.3
	1911	2.4	57.3	35.2	4.5	.3
	1912	2.2	62.8	31.0	3.5	.3
	1913	3.6	64.2	29.0	2.9	.1
	1914	1.7	53.5	42.6	1.9	.1
	1915	1.2	56.8	40.5	1.2	.1
	1916	.5	52.6	44.9	1.6	.2
Meat markets.....	1907	2.8	35.0	47.3	9.9	4.9
	1908	1.8	39.8	47.4	10.1	1.8
	1909	2.2	57.7	34.0	5.4	.5
	1910	3.4	58.8	32.0	4.8	.2
	1911	1.3	53.2	39.7	5.2	.5
	1912	.9	60.4	35.3	2.4	.3
	1913	1.9	64.7	30.2	2.9	.1
	1914	.7	55.0	41.3	2.6	.2
	1915	1.1	55.8	40.7	2.1	.1
	1916	.4	54.0	42.9	2.3	.3
Drug stores.....	1907	8.1	58.4	30.7	3.2	.0
	1908	5.4	76.9	15.8	1.5	.0
	1909	3.8	72.9	18.7	3.4	.8
	1910	2.2	80.6	13.6	3.0	.4
	1911	1.5	78.4	18.3	1.4	.1
	1912	1.9	77.9	18.3	1.6	1.6
	1913	9.7	76.7	12.4	1.1	.0
	1914	1.4	79.5	19.6	.2	.0
	1915	.8	78.0	20.7	.4	.0
	1916	.4	77.9	22.5	1.4	.0
Bakeries and confectioneries	1907	4.4	40.5	40.8	11.6	2.8
	1908	4.3	39.1	46.4	8.0	2.1
	1909	3.7	49.7	36.2	8.9	1.4
	1910	3.8	52.5	37.3	5.4	.8
	1911	2.6	55.3	35.6	5.9	.4
	1912	1.8	56.6	36.0	4.9	.4
	1913	4.0	61.0	31.6	2.7	.5
	1914	1.3	54.4	40.7	3.2	.1
	1915	1.5	60.6	37.7	3.0	.0
	1916	1.2	55.5	40.4	2.5	.6
Hotels and restaurants....	1907	4.5	33.7	40.5	18.0	3.2
	1908	2.0	34.6	48.9	11.4	1.6
	1909	1.3	32.8	47.2	16.1	2.2
	1910	.9	37.7	52.3	8.1	.8
	1911	.7	35.1	52.0	10.6	1.5
	1912	.6	41.0	50.3	7.4	.4
	1913	2.4	45.8	45.6	5.5	.5
	1914	.4	39.8	53.5	6.6	.1
	1915	.7	38.9	56.2	3.7	.3
	1916	1.1	36.8	56.0	5.1	.7

# CONDEMNATION REPORTS.

An important feature of the sanitary food law is the provision which gives the state food commissioner authority to condemn unsanitary places and to close such places pending their improvement. Under this section of the law 637 establishments were condemned during the year. In 606 cases the condemnation notice was issued because of unsanitary conditions at the plant. The inspectors also observed that in 497 of these places the floors, equipment or building itself were improperly constructed.

## CONDEMNATIONS—OCTOBER 1, 1915, TO OCTOBER 1, 1916.

Classification.	Reasons for Condemnation.		Total Number of Places Condemned.
	Unsanitary Conditions.	Improper Construction.	
Bakeries.....	53	40	53
Bakery and restaurants.....	1	1	1
Bottling Works.....	1	1	1
Cafes.....	1	1	1
Canning factories.....	1	1	1
Condensories.....	1	1	1
Confectioneries.....	17	14	17
Confectioneries and Ice Cream Plants.....	1	1	2
Confectionery and Lunch Rooms.....	1	1	1
Creameries.....	19	17	19
Dairies.....	160	147	160
Depots.....	1	1	1
Drug Stores.....	3	3	3
Fish Markets.....	3	3	3
Fruit Stores.....	3	2	3
Groceries.....	74	53	77
Grocery and Meat Markets.....	14	11	18
Grocery and Lunch Counters.....	1	1	1
Grocery and Restaurants.....	2	1	2
Hotels.....	23	19	23
Ice Cream Plants.....	15	16	22
Livery Stables.....	1	1	1
Lunch Carts.....	1	1	1
Meat Markets.....	21	24	30
Milk Depots.....	12	10	12
Poultry Houses.....	1	1	1
Restaurants.....	137	97	140
Restaurant and Bakeries.....	2	2	2
Restaurant and Confectioneries.....	1	1	1
Saloons.....	12	10	12
Saloon and Lunch Rooms.....	18	18	18
Slaughterhouses.....	8	8	8
Slaughterhouses and Meat Markets.....	1	1	1
Totals.....	606	497	637

## INSPECTION OF CANNERIES.

## SEASON OF 1916.

The Indiana canner did not pack his usual output in 1916. Weather conditions which were excellent in the spring and early summer and which promised an abundant crop, were not maintained throughout the growing season. Fierce droughts stopped fruiting. Tomatoes which should have produced a maximum yield made but half a crop. The sweet corn crop was below the average. The pea pack was light and of average quality only. Many factories did not operate but the plants which did run were handled in a sanitary manner. The canner has learned that the sanitary food law helps his business, and that the money he invests in cement floors, additional water supply, decent toilets and clean operatives will earn his real dividends because of the better price his product commands on the market.

The following list of canneries is not complete but is given because it shows in brief the condition of the factories inspected.

## INSPECTION OF CANNERIES, SEASON 1916.

## ACTON—

*Acton Canning Company.*—This place is rated "Fair" by the inspector, fault being found with the toilets and sewerage. Tomatoes only are packed.

## ALERT—

*Alert Canning Company.*—A small handpack plant, fairly well kept canning tomatoes only.

## ALEXANDRIA—

*Alexandria Preserving Company.*—Building is brick and concrete, with concrete floors. It has outside toilets, sewer, and wash stands. The grade is "Fair."

## ANDERSON—

*Powers and Sheppard Canning Company.*—These people were canning tomatoes under an open shed, bad floor, no toilets, dumping refuse within eight feet of "plant". Packed tomatoes and pulp. "Fair."

## ARCADIA—

*Arcadia Canning Company.*—Good frame building, board and concrete floors, good outside toilets, refuse sewered and hauled. Packed tomatoes and pulp. "Fair."

## AUSTIN—

*Austin Canning Company.*—Plant of J. S. Morgan and Son, who are all the time making improvements in their factory. They do a general packing business and operate throughout the year. They have a good plant.

*The Star Canning Company.*—This place was condemned in 1914 and did not operate in 1915, but after making certain improvements was permitted to pack tomatoes and pumpkins this year. It is still far short of a satisfactory plant.

## BROWNSTOWN—

*W. A. Patrick Company.*—Pack tomatoes, beans and pumpkin in a small way in a poor frame building with a fair concrete floor. The surroundings are not good and the place is scarcely entitled to a score of "Fair."

## BUNKER HILL—

*Bunker Hill Canning Company.*—Fair frame building with fair board floor, flush toilets, sanitary sewer, wash and dressing rooms. Pack tomatoes and tomato pulp. Score "Fair."

## CARTHAGE—

*Dana Canning Company.*—A frame building with board floors, in fair condition, sewage pumped into stream some distance away, moderate equipment, is the estimate put on this plant, which is a branch of the Dana Packing Company of Ohio, and is rated as "Fair."

## CLARK'S HILL—

*Franklin McVeagh and Company.*—A foreign corporation (Chicago) manufacturing catsup, chili sauce and tomato pulp—operates as a satisfactory plant and is rated as better than "Fair."

## COLUMBUS—

*Van Camp Packing Company.*—This is a branch plant of the Van Camp Packing Company of Indianapolis. The building is a fair frame with good concrete and board floors, sanitary sewerage, fair outside toilets, and is a well conducted plant. Tomatoes, pumpkin and catsup are packed here. The score is "Good."

## CRAWFORDSVILLE—

*Van Camp Packing Company.*—This is one of the newer plants of the state and embodies all that is latest and best in building and equipment. The output consists of tomatoes and pulp. The rating is better than "Good."

## CROTHERSVILLE—

*Rider Packing Company.*—This plant belongs to an old firm but it has been so thoroughly over-hauled and rebuilt and equipped that it is now one of the best plants in southern Indiana and is entitled to a score of "Good plus." Riders do a general packing business and operate throughout the whole year.

## DELPHI—

*The Great Western Canning Company.*—A good plant throughout—good buildings, good equipment, good, sanitary conditions and a good spirit. The output is corn, peas, hominy and pumpkin.

## DUNREITH—

*Farmers' Canning Company.*—Frame building in good repair, concrete floors, flush toilets, dressing rooms for women, sewerage, satisfactory equipment, for the packing of tomatoes and tomato pulp. "Good."

## EDINBURG—

*Naomi Packing Company.*—This plant packed corn only, this year and is well equipped for it. It is a good food factory.

## ELNORA—

*Elnora Canning Company.*—This plant was built a long time ago on a flat tract of ground, impossible of drainage. A new plant should be built on well drained ground before the season of 1917. Despite the unsatisfactory location and poor building so much care was taken that the plant is entitled to a score of "Fair."

## ENGLISH—

*English Canning Company.*—Tomatoes and tomato pulp packed here. This plant is showing improvement in methods, equipment and management, but there is still much to do in the way of betterment.

## EVANSVILLE—

*Indiana Canning Company.*—This plant has the advantage of a splendid brick, steel and concrete building, equipped with city sewage, city lights, sanitary flush toilets, good wash and dressing rooms, etc., and should run twelve months in every year. But it doesn't, just long enough to pack tomatoes and make some tomato pulp.

## FAIRMOUNT—

*T. A. Snider Preserving Company.*—A good plant, well equipped and well managed. This is one of the six plants operated in Indiana by the Snider Corporation and complies in every regard with all requirements.

## FRANKLIN

*Franklin Canning Company.*—This is one of the Grafton Johnson plants. Nothing but corn is packed. That is well done, the building, equipment and sanitation being entirely satisfactory to the inspector.

## FRANKFORT—

*Dana Canned Goods Company.*—A frame building in fair condition, fair board floors, inside toilets, not the best of sewerage facilities, and fair equipment is a fair description of this corn packing plant, which must be rated a little less than "Fair."

## FREETOWN—

*Freetown Packing Company.*—This is a branch plant of Rider Brothers of Crothersville, is a well kept, practically new plant and packs tomatoes and tomato pulp. "Good."

## GREENWOOD—

*J. T. Polk Company.*—This is one of the oldest firms in the country in the food packing business but it never gets too old or "too set in its ways" to adopt new methods or install new equipment when conditions can be bettered or products improved.

## HARRISON—

At this place, on the Ohio-Indiana State line, is located another one of the T. A. Snider plants. Here pulp, only, is manufactured. The plant is modest and the equipment not very elaborate but a satisfactory product is packed.

## HENRYVILLE—

*Jeffersonville Canning Company.*—This plant built a long time ago, and built where there was no chance for decent drainage, is very much out of repair and must be rebuilt and relocated before another packing season opens. Tomatoes and pulp score "Poor."

## HOPE—

*The Hope Canning Company.*—The inspector rates this plant as "Poor—old and dilapidated and must be rebuilt or discontinued." Corn and tomatoes.

## INDIANAPOLIS—

*J. Henry Amt Company.*—This company manufactures kraut, pickles and vinegar. The drainage is poor, the toilets (in the yard) are poor and the place is "cluttered up." The plant is located in a thickly settled part of the city—which is not the place for a plant like this. The score is "Poor."

*Central States Canning Company.*—This plant started in 1915, before it was thoroughly equipped, but the management promised "to speedily put the place in the best sanitary condition and very soon to have the best canning factory in the state." The promise has not been kept in either particular, though it is easy to keep the first part of it. The score slides from "Fair" last year to "Poor" this year.

*Columbia Conserve Company.*—This is a very good plant with every facility for the health and comfort of employes, and for the production of good and wholesome food products. General line packed.

*Haverskamp and Hagelskamp Company.*—This place shows a decided improvement over 1915. With more care in washing tomatoes the score would be better than "Fair." General line packed.

*W. D. Huffman and Company.*—This factory shows commendable improvement in buildings, equipment and methods. Full line of food products packed.

*C. W. Jackson and Son.*—This concern is doing business in a building not well adapted to the packing business, but all things considered, are doing a fair job. More attention to little things—details—would warrant a higher score. "Poor."

*Schnull and Company.*—Every equipment is provided for the betterment of the plant, the employe and the product, and it is intelligently handled.

*Van Camp Packing Company.*—This company has a good plant as it is, but proposes to build a new one embodying all the newest and best in equipment, efficiency and sanitation.

#### JEFFERSONVILLE—

*Jeffersonville Canning Company.*—This is an all the year round plant, packing hominy, kraut, pork and beans in a satisfactory manner in a good plant under good management.

#### JASPER—

*B. F. Shaver Canning Company.*—Mr. Shaver has been operating canning factories in Virginia for a number of years until last year he came to Indiana and leased an abandoned plant at Jasper and one at Huntingburg, each in Dubois county. The plant at Jasper was condemned and cannot longer be used until radical improvements have been made. The plant at Huntingburg was purchased outright and was in very good condition this year, but the owner contemplates making extensive improvements before the tomato season next year. Mr. Shaver will be a valuable addition to the industry, as he is an intelligent progressive gentleman.

#### KENNARD—

*Kennard Canning Company.*—This company packs, in good condition, tomatoes, pulp and pumpkin in a satisfactory plant. It is operated by Goddard and Company Wholesale Grocers, Muncie, Indiana.

#### KNIGHTSTOWN—

*Knightstown Conserve Company.*—The inspector would like to see improvements in this plant—in the building, the floor, the toilets and general sanitation.

#### KOKOMO—

*Saylor's Packing Company.*—A well equipped, well managed plant, which packed this year, corn.

#### LADOGA—

*Ladoga Canning Company.*—This company has a large business packing corn, tomatoes, pumpkin and kraut, in an old dilapidated frame building which should be abandoned. The sewerage is unsatisfactory and it is impossible to make a good plant out of it. The rating is "Poor."

#### LEBANON—

*Ladoga Canning Company.*—This is one of the new good plants of the state, packing a general line of foods in an intelligent manner. It is well equipped throughout and deserves large success. "Good."



## LEOTTA—

*Morgan Packing Company.*—This is a branch plant operated by J. S. Morgan and Son, of Austin, and is not up to the Morgan standard. It is old and in poor condition and should be abandoned or rebuilt. "Poor."

## LEXINGTON—

This plant did not operate in 1915 and should not have operated in 1916 in its present condition. Radical improvements must be made before it is used again as a food factory. "Poor."

## LITTLE YORK—

*Morgan Packing Company.*—This is a branch plant of J. S. Morgan and Son of Austin, and is new and fully meets all requirements. Tomatoes and tomato pulp are packed. "Good."

## MADISON—

*T. A. Snider Preserving Company.*—This plant shows a gradual improvement with each year and is successfully and intelligently operated. Tomato pulp and tomato catsup manufactured. "Good."

## MARTINSVILLE—

*Van Camp Packing Company.*—A general line of food stuffs manufactured here. The plant runs all the year, is well equipped and conducted in a sanitary manner. "Good."

## MEDORA—

*Medora Packing Company.*—This is a small country tomato plant but it is one of the best in the state.

## MUNCIE—

*Tuhey Canning Company.*—Packs a general line, operates throughout the year, is well equipped and is a "Good" place.

*Butterfield Canning Company.*—Tomatoes and catsup packed in a good building with a good concrete floor. Equipment and spirit good.

## NEW CASTLE—

*Sears and Nichols Canning Company.*—The building in which the concern packs tomatoes and pulp is not the best but the equipment is satisfactory and unusual care is taken in every step of the manufacturing process. This entitles the firm to a score of "Good."

## ORESTES—

*Orestes Canning Company.*—Tomatoes only, packed by this company in a fair frame building, with fair equipment and with fair success. "Fair."

## PAOLI—

*Tomato Products Company.*—After two years of experimenting this excellent plant has turned its whole energy to the production of Italian paste. The progressive spirit shown by this splendid firm has attracted

the attention of the best food manufacturers of the United States and most of them have made pilgrimages to the plant for information and inspiration.

**PATRIOT—**

*Wm. Bunger.*—A small farm hand pack tomato plant, with poor equipment. Though some care is exercised, and a safe food product produced, the score must be "Poor."

**PETERSBURG—**

*Petersburg Canning Company.*—This is a well conducted, well equipped tomato plant and meets in every regard, every requirement of the Department. "Good."

**PENDLETON—**

*Fall Creek Canneries.*—Tomatoes and tomato pulp. There are some very commendable features in this plant but the men's toilets, the sewerage and the floor in the peeling room are not satisfactory. Improvements in these particulars must be made before a good score can be expected.

**PIERCETON—**

*Reid, Murdock and Company.*—A Chicago firm, with its main food factory at Hammond, Indiana, operates this plant for the production of catsup, kraut and chili sauce. The plant is a good one in equipment, in management, in spirit and product. A new \$50,000 building has been erected this year.

**PLAINVILLE—**

*Plainville Canning Company.*—Tomato pulp and tomato puree are the only food products packed by this firm. It is a satisfactory plant throughout. "Good."

**ROCHESTER—**

*Rochester Canning Company.*—This is not the best building, not yet the best equipment, but the intelligent supervision and watchful care given every step of the manufacturing process puts this concern in a class among the best in the state.

**SCOTTSBURG—**

*Scottsburg Packing Company.*—This plant has been recently acquired by Hoagland Brothers and they will make extensive improvements on the place. The condition is now "Fair."

**SHARPSVILLE—**

*Sharpsville Canning Company.*—N. L. Hutto has been in the packing business for a long time and has built up a large factory "piece-meal." His intelligent supervision and splendid spirit impels the writer to wish that he (Hutto) might soon have a new up-to-date plant, built as a result of his experience and ideals—and show the world just what he could do under such environments. "Good."

## SHELBYVILLE—

*Grafton Johnson.*—This is Grafton Johnson's corn plant. Nothing else is packed here. It is a "Good" plant.

## SHERIDAN—

*Sheridan Packing Company.*—Corn and tomatoes are packed by this satisfactory plant. The inspector gives a score of "Fair."

## SHIRLEY—

At this place a plant was found concerning which there was little to commend and much to condemn. The building is poor, the sewage is unsatisfactory. So are the toilets, the wash rooms and dressing rooms and the whole place was found to be unclean. This factory is "Bad" and cannot longer operate under present conditions.

## SPICELAND—

*Citizens Canning Company.*—Tomatoes and tomato pulp are packed here in a fair factory, with fair equipment, but a little more "ginger" should be injected into the place.

## STRAUGHN—

*S. H. Murphy & Company.*—Corn, tomatoes and pulp. Small in nearly everything except care. This plant is doing a mighty good job packing its line of foods.

## SULLIVAN—

*Sullivan Canning Company.*—This food plant, well managed, was only fairly started on a good pack when a killing frost stopped the work. But the same misfortune came to nearly all the plants of the state. At Sullivan however, it appeared to be most severe.

## SUMMITVILLE—

*Summitville Canning Company.*—Here we find a good brick building, good concrete floors, good wash and dressing rooms and satisfactory equipment—a well managed plant, turning out a good wholesome product.

## TIPTON—

*T. A. Snider Preserving Company.*—This is another one of the Snider plants which is well equipped and well managed. Pulp. "Good."

*Fame Canning Company.*—This is another Grafton Johnson plant—and his plants are always in good condition, well equipped and well managed. He packs peas, corn and pulp at this factory.

## UNDERWOOD—

*Hoagland Brothers.*—A good new brick building, concrete floors, sanitary toilets and a good equipment throughout puts this enterprising firm in good condition for their general pack.

## VALLONIA—

*Vallonia Canning Company.*—The inspector says, "This is a very good plant, well equipped, and its help above the average."



## MEDICAL FRAUDS.

FOURTH EDITION.

Published by the Indiana State Board of Health in the hope that the data it contains will be helpful in discouraging the use of nostrums and worthless preparations.

Read it carefully and then pass it along.

H. E. BARNARD,

State Food and Drug Commissioner.

## MEDICAL FRAUDS.

FOURTH EDITION.

It is ignorance that makes it possible for patent medicine men to sell a hundred million dollars worth of their concoctions every year; it is ignorance that thinks fat will disappear after dosing with Parnotis or that Sargol has a miraculous power to increase weight; it is ignorance that believes rheumatism can be cured before the cause of the pain is removed; it is ignorance that thinks beauty can be purchased in bottles of Spurmax or Canthrox, and it is ignorance that tolerates the idea that selfprescribing can relieve pain or cure disease.

To clear away these clouds of ignorance behind which many a patent and proprietary manufacturer hides while he practices his deceitful trade, the State Board of Health offers this the Fourth Edition of Medical Frauds. The material is not new, nor is it for the most part original, although the analytical data has been checked in our laboratories; it does attempt to tell the plain facts about some of the betterknown nostrums. If, after the reader knows that Amarol, sold for a complexion beautifier, is nothing but Epsom Salt with a little Borax; that Borothol, sold as an Eczema Remedy, is photographers' "Hypo" and Borax; that Fat-Off is soft soap; in fact that most of the widely advertised preparations are cheap, common chemicals put up in attractive packages and sold by the lure of a resonant but non-descriptive name, if he still wishes to waste his money and delay his cure we can do no more to prevent him.

False-advertising laws have done much to improve the character of the label and suppress exaggerated claims, but they fail of accomplishing the desired end because they cannot prevent the credulous who still think of medicine as a form of "Black Art" from falling into the error that a bottle of medicine is as good as a doctor's visit and costs less. Of course the educated mind is not fooled by such false argument and recognizes the fact that the chemistry of the body is the same kind of chemistry that is studied in the laboratory and that only those medicines have real value that are capable of assisting the chemical reactions within the cells of the diseased body.

Included in the list will be found a number of preparations which without doubt will do the work required of them. The depilatories or hair removers will take off hair, but the hair root is stimulated instead of injured and the hair grows again coarser than before. The deodorizing creams and powders are efficient in concealing odors and to that extent are substitutes for soap and water and body cleanliness, but to use them is to go back to the

times when bathing was a little practiced virtue and strong perfumes an antidote for filth. Freckles can be removed with "Mercolized Wax" but the skin comes off along with the freckles.

We further believe it is a vicious practice to sell poor people who can spare but little money for medical attention drugs or chemicals at prices far in excess of their real value, and such business is the more to be condemned because the facts are concealed behind misleading and disguised names. It is bad enough to sell "Clearola" as a skin treatment, but the practice becomes vicious when by virtue of a non-descriptive name one cent's worth of sulphur sells for fifty times its actual value.

We hope this information about Medical Fraud and unfair dealings with the sick and ignorant may be given wide publicity. The State Board of Health will send the circular to all who can make use of it and who may be able to pass along to others the data it contains. For additional information concerning fraudulent preparations, address,

H. E. BARNARD,  
State Food and Drug Commissioner  
State House, Indianapolis Ind.

*Absorbil.*—Manufactured by the Von Vogel Laboratories, Chicago, Illinois, and sold under the claim that it "absorbs perspiration and odor." A twenty-cent package contains about two cents worth of the following mixture:

Boric acid .....	18 parts
Magnesium carbonate.....	40 "
Alum.....	10 "
Calcium carbonate.....	22 "

*Absorbine, Jr.*—According to The American Medical Association the following formula is practically identical with Absorbine, Jr.:

Oil of wormwood.....	4 parts
Oil of saffron.....	1 "
Menthol.....	1 "

Acetone, sufficient to make 100 parts.

The amount of solution contained in a dollar bottle is possibly worth one-tenth that price.

*Adlerika.*—A very strong purge, depending for its action on epsom salt and aloes, that is both dangerous and fraudulent. The contents of a dollar bottle are worth approximately four cents.

*Almazoin.*—H. S. Petersen and Company of Chicago, Ill., put up three cents worth of the following mixture in an attractive package and sell it for fifty cents under the claim that it is "fine for beautifying the arms, face and neck."

Borax.....	27%
Magnesia.....	23%
Gum tragacanth.....	40%

*Alpen Seal.*—The Alpen Chemical Company, of Chicago, manufacturers of this preparation, claim that "it increases woman's power." This claim,

of course, is meaningless and is doubtless used to surround the preparation with mystery. Alpen sea is a solution of oil of cinnamon, glycerine, saccharin and vegetable extractives and is sold at the rate of fifty cents for two cents worth of ingredients.

*Amarol*.—A so-called complexion beautifier, manufactured by the F. W. Scharff company of Chicago, that contains 95% epsom salt and five per cent borax. It sells for fifty cents although the ingredients are worth but one.

*Am-O-Lox Ointment*.—This is an ointment with a vaseline base and contains about twelve per cent zinc oxide and five per cent salicylic acid. The materials that compose a fifty cent package are worth but five cents.

*Am-O-Lox-Prescription*.—This preparation is essentially a one per cent solution of salicylic acid in water and alcohol that is flavored with oil of wintergreen. The contents of a dollar bottle are worth about ten cents.

*Am-O-Tone*.—That anyone would be so foolish as to pay seventy-five cents for five cents worth of borax is rather hard to believe, yet this is precisely what many do when they buy Am-O-Tone to use as a "dry shampoo."

*Anazyme*.—According to the manufacturers of this preparation, the Maltbie Chemical Co., of Newark, N. J., it "makes an excellent gargle for tonsillitis." It consists of borax 50%, alum, 26% and boric acid 24%. In addition to being somewhat incompatible, it is sold at the rate of fifty cents for three cents worth of common drugs.

*Anti Freckle Lotion*.—E. B. Gustin manufactures this preparation in Logansport, Ind., and guarantees it to remove freckles. Inasmuch as it is a simple solution of corrosive sublimate, we will not deny his claim but rather supplement it by adding that the skin and some flesh will follow the freckles into oblivion.

*Ascalco*.—A poisonous solution of arsenic and opium that will not cure asthma as advertised.

*Bad-Em-Salz*.—"A substitute for mineral water" is the claim made by the American Laboratories, Philadelphia, Pa., for their product Bad-Em-Salz. It consists of the following:

Salt.....	13%
Glauber's salt.....	42%
Baking soda.....	36%
Cream of tartar.....	9%

and is sold for a quarter of a dollar. The actual value of the ingredients is about two cents.

*Barbo Compound*.—A mixture of sugar of lead 28%, sulphur 17%, Glauber's salt 16%, and calcium chloride 14% that is advertised to remove dandruff and "scalp humors." Cleansing the head with soap and water also removes dandruff and costs but a trifle. Why pay fifty cents for two cents worth of such stuff as Barbo compound.

*Barkola Compound*.—A solution of potassium acetate, licorice and glycerine advertised by the manufacturers, the Old Fort Chemical Company, of Fort Wayne, Ind., as "a powerful diuretic, blood purifier and tonic." The contents of a fifty-cent bottle are worth two cents.

**Beecham's Pills.**—According to the British Medical Association, these pills consist of aloes, powdered ginger and soap. One half cent would be a high price to pay for the ingredients of a twenty-five cent box.

**Berledets.**—Berledets are composed of the following:

Boric Acid.....	58%
Sugar.....	15%
Starch.....	21%
Water.....	6%

The Berledet Company of Chicago is responsible for these foolish tablets and sells them for fifty times the value of the ingredients.

**Beta Canthol.**—A so-called hair tonic manufactured by the F. W. Scharff Company, of Chicago, that contains alcohol, resorcin, menthol, beta-naphthol, and quinine. A bottle which costs seventy-five cents contains about seven cents worth of this mixture.

**Beta-Quinol.**—This preparation is sold by the Cooper Pharmacal Company, of Chicago, with the same claims that are made by the F. W. Scharff Company for their product Beta Canthol. They are practically identical in composition and further comment is therefore unnecessary.

**Bisurated Magnesia.**—As an antacid "Bisurated Magnesia" is probably of some value but why pay fifty cents for it when four times the amount of baking soda may be purchased for five cents?

**Boro-Listor.**—Manufactured by F. W. Scharff Company and "recommended for catarrhal conditions, lotion in wounds and to check perspiration." It consists of five cents worth of boric acid with a trace of eucalyptus and is sold for seventy-five cents.

**Borothol.**—An "Eczema Remedy," also manufactured by the F. W. Scharff Company. It consists of Sodium Thiosulphate, known to photographers as "hypo", 59%, borax 15% and water, included in the crystals of the other ingredients, 26%. The contents of a seventy-five cent package are worth about two cents.

**Bromo Quinine.**—These tablets contain nearly forty per cent acetphenetidin, and therefore are dangerous heart depressant.

**Bromo Seltzer.**—An effervescent mixture containing a strong heart depressant and therefore dangerous.

**Brovene.**—Under this name, The Brovene Company of Detroit, induces some people to pay seventy-five cents for five cents worth of borax. The claims and composition of this preparation are almost identical with those of Am-O-Tone.

**Brownatone.**—This preparation is a hair dye that contains salts of iron and copper together with an organic compound that is probably gallotannic acid. The contents of a twenty-five cent package are worth possibly one cent.

**Calocide Compound.**—A very cheap mixture of common salt, borax, alum and a small amount of tannin. The contents of a twenty-five cent package are worth approximately two cents.

**Canthrox.**—If we condense the elaborate statement of the manufacturer that Canthrox "gives to the hair that exquisite fluff and wavy softness that



will insure a lovely growth," we find that he means that it cleanses. Obviously we do not deny this claim, but prefer to buy soap as soap at soap prices and not Canthrox at twenty-five times its actual value.

*Capthol*.—Another of the F. W. Scharff Company's preparations that is claimed to benefit the hair. A seventy-five cent package contains three cents worth of the following mixture: Borax 43%, Corn meal 57%.

*Capudine*.—This solution contains antipyrin, caffeine, salicylates, bromides and licorice. In common with all other headache "dopes" its use is dangerous.

*Casca Royal Pills*.—A mixture of sulphide of lime, capsicum and a trace of belladonna, that was declared misbranded by the federal authorities when sold under the original name "Castor Oil Pills." A twenty-five cent package is worth but two cents.

*Castoria*.—The Journal of the American Medical Association, in summarizing the patent of this preparation, which has now expired and is public property, states that "it appears to be a syrup containing an aqueous extract of senna with aromatics." The continued use of senna by an adult is dangerous, but for infants, as Castoria is advertised, it is doubly so.

*Citrox*.—This "Eczema Remedy" consists entirely of sodium thiosulphate, otherwise known as the photographers "hypo." It is sold for fifty cents a package, the contents of which are worth but two.

*Clearola*.—G. W. Carpenter, of Jeffrey, N. H., has discovered how to sell one cent's worth of sulphur for fifty. His method consists of putting it in a pasteboard box, calling it Clearola and advertising that it "whitens the skin."

*Coconide*.—Coconide is a mixture of 83% borax and 17% soap. The manufacturers, the Montgomery Chemical Company, Dayton, Ohio, claim it to be "remarkable for the lustrous fluffy nature that it imparts to the hair." This is essentially the same claim as that made for Canthrox and as we stated then, it is much cheaper to buy soap as such and at its normal price.

*Crystos*.—How a mixture of salt, borax and boric acid "restores brilliancy and expressiveness to dull eyes" is beyond our comprehension. Such, however, is the unwarranted assertion of H. S. Petersen and Company concerning Crystos, which enables them to foist two cents worth of these ingredients upon the public for fifty cents.

*Cuticle Acid*.—This preparation is manufactured by Richard Hudnut, of New York City, and is a 2% solution of oxalic acid in alcohol and water. The ingredients of a twenty-five cent package are worth about one cent.

*Cuticura Ointment*.—The British Medical Association reports on this product as follows: "It consists of a mixture of hard and soft paraffin, slightly perfumed with rose and colored green." In our analysis, also, no other ingredients could be detected and we must conclude that the purchaser of this salve pays an outrageous price for vaseline.

*Dandruf-Cide*.—Advertised by Ward and Company of Chicago, as "The world famous dandruff destroyer." It is entirely sal-soda and a one dollar package contains three cents worth.

*DeLaloue*.—This powder is typical of that class of preparations called depilatories that are used for removing hair. They depend for any action they

may have upon an alkaline sulphide such as sodium, calcium or barium and the principal objection to them is the extravagant price charged. This particular one is composed of barium sulphide 7%, barium sulphate 7% and starch 85%. The ingredients of a dollar package are worth about one cent.

*Delol*.—A depilatory manufactured by the F. W. Scharff Company which contains:

Barium Sulphate.....	14%
Barium Sulphide.....	14%
Sulphur.....	4%
Calcium Carbonate.....	3%
Zinc Oxide.....	17%
Starch.....	48%

(For remarks see *Delatone*.)

*De Miracle*.—A depilatory solution of sodium sulphide in water. The contents of a dollar package are worth but one or two cents. (See *Delatone*.)

*Deodorizing Cream*.—A simple zinc oxide ointment that H. Hatten of Chicago claims "Destroys and neutralizes the odor of perspiration." The ingredients are worth but three cents yet are sold for twenty-five.

*Depilatory*.—This powder is manufactured by H. Hatten of Chicago and contains:

Sulphur.....	7%
Barium Sulphate.....	25%
Barium Sulphide.....	21%
Calcium Carbonate.....	10%
Starch.....	37%

(See *Delatone*.)

*Depilatory*.—Harriet Hubbard Ayers of New York City also manufactures a depilatory that has the following composition:

Barium Sulphide.....	32%
Starch.....	68%

(See *Delatone*.)

*Doan's Kidney Pills*.—According to the British Medical Journal, similar pills contain potassium nitrate, hemlock pitch, oil of juniper and powdered fenugreek. A box containing forty pills is sold for sixty-six cents and is worth one.

The excessive price charged for this preparation is not its worst feature as the insidious advertisements cause the sufferer to delay the physician's attention to the very serious kidney diseases.

*Dorothy Vernon Shampoo*.—This preparation is put out by the Jennings Company of Grand Rapids, Michigan, and consists of the following:

Soap.....	78%
Borax.....	22%

It is therefore very similar to Coconide and remarks concerning the latter are equally applicable to it. The contents of a fifty cent package are worth about two.

*Eckman's Alternative.*—Collier's Weekly recently tabulated the patent medicines that had been taken by the patients of a hospital for the tuberculous prior to their admission and found that more had consumed Eckman's Alternative than any other fake. When we learn that this fraudulent mixture of clove., alcohol and calcium chloride sells for two dollars a bottle and that each patient probably takes ten to twelve bottles, we must realize that the public is paying quite a bonus for its patients in the tuberculosis hospitals.

*Eggol.*—A twenty-five cent package of this product contains two cents worth of soap, borax and salts of tartar in the proportion of forty-three, thirty-six and twenty-one parts respectively. It is closely akin to Canthrox in composition and excessive price.

*El Rado.*

Sodium Sulphide.....	5%
Glycerine.....	10%
Water.....	85%

Such is the composition of the Pilgrim Manufacturing Company's depilatory "El Rado."

(See remarks concerning *Delatone*.)

*E-Ru-Sa.*—The falseness of the statement of the manufacturer that "E-Ru-Sa removes piles or \$50.00 paid" is clearly demonstrated by analysis which reveals this preparation to be a mixture of charcoal, sulphur, tannic acid and vaseline. A tube costing one dollar is filled with three cents worth of this mixture.

*Fat Off.*—This silly product of M. S. Borden, Brooklyn, N. Y., is soft soap. When sold as Fat Off, five cents worth rises in price to a dollar and a half.

*Father John's Medicine.*—We find this preparation to consist approximately of one third cod liver oil, one third water and one third balsam tolu and emulsifying agents. The United States District Court has declared this stuff misbranded because it is not "without an equal as a body builder, health food and for consumption, coughs, colds, croup, lagrippe, pneumonia, whooping cough, bronchitis, asthma, night sweats, catarrh, rickets, thin blood, hoarseness and weak voice."

*Fluid Balmwort.*—By means of the impossible claim that Fluid Balmwort "cures chronic bedwetting" the Prescription Products Company induce some irrational people to pay fifty cents for two cents worth of potassium acetate, glycerine and vegetable extracts.

*Flowers of Oxzoine.*—"Unsurpassed for restoring a youthful appearance" is the untruthful claim made by the To-Kalon Manufacturing Company for this product. It consists of three cents worth of the following mixture and is sold for fifty cents:

Zinc Oxide.....	22%
Glycerine.....	18%
Water.....	60%

*Fluid En-Ser-Ol.*—Fluid En-Ser-Ol is a solution of camphor, oil of cinnamon and water. The infinitesimal cost of the ingredients, which sell for

one dollar when called En-Ser-Ol, is entirely commensurate with its value as a "catarrh cure."

*Fruitola*.—Were it not for the suffering involved, the attempt of the Pinus Medicine Company to sell fifteen cents worth of olive oil and a couple of seidlitz powders for a dollar, would be laughable.

*Gloriol Balm*.—The Leslie Company, of Dayton, Ohio, informs the public that Gloriol Balm "improves and preserves the complexion." One cent's worth of stearic acid, borax, soap and water may exert that action when sold as Gloriol Balm for a quarter of a dollar but under their own names we deny their ability to materially improve nature.

*Gloriol Glowene*.—One of the few preparations advertised truthfully. Since it consists of softsoap, no one will deny that it is a "skin cleanser" but we can not understand why anyone would pay twenty-five cents for two cents worth when called Gloriol Glowene.

*Gloriol Wavolene*.—Two cents worth of camphor, gum arabic and potassium carbonate, dissolved water and sold for fifty cents.

*Grace's Mineral Salts*.—Among the many ridiculous powers claimed by The Grace's Mineral Salts Company of Evansville for their product is the following: "Is the fastest blood maker in the world." It contains forty-five per cent ordinary baking soda, thirty-eight per cent salt and seventeen per cent rochelle salt and is sold for ten times the value of the ingredients.

*Hall's Catarrh Cure*.—Potassium iodide, apparently, is the very life of a host of patent medicines that are advertised to cure almost anything from barber's itch to rheumatism. We have found it in so-called "cures" for consumption, eczema, syphilis, asthma, pneumonia, dropsy and now catarrh for it is the principal ingredient of Hall's Catarrh Cure. Potassium iodide no doubt has value in some diseases when properly administered but most of the wonderful virtues ascribed to it by the patent medicine manufacturers, when sold under a coined name, are impossible.

*Hairwand*.—Other mixtures of similar composition "modestly" claim to be only "beautifiers," while the Leslie Company sells Hairwand as a "hair restorer." This statement is, of course, false and as the preparation is a mixture of salt, borax and sodium salicylate a fifty cent package is worth but two in actual value.

*Hays' Hair Health*.—This combination is also sold under the false claim that it is a "hair restorer." It is manufactured by the Plaito Hays Specific Company and is a mixture of sugar of lead 1.5%, sulphur 1.5%, alcohol and water. The contents of a fifty cent bottle are worth but five.

*Heaston's Rheumatic Remedy*.—Under this name, the Huntington Remedy Company induce people to pay fifty cents for two cents worth of sal soda dissolved in water.

*Hyomei*.—We quote from the Journal of the American Medical Association in regard to this stuff as follows: "The chemists of the British Medical Association analyzed this humbug and reported that it had essentially the following composition:

Oil of Eucalyptus.....	80%
Alcohol.....	10%
Liquid Paraffin.....	10%

There was also a trace, apparently, of creosote in the mixture. Of course, this mixture never cured anything, unless it was the impecuniosity of its exploiter."

*Jad Salts.*—This conglomeration is labelled to contain citric and tartaric acids, sodium phosphate, potassium bicarbonate, sodium bicarbonate, sodium chloride, lithium carbonate and hexamethylenetetramine. With the exception of the last two, which are present only in exceedingly small quantities, these ingredients are of the cheap and common variety. The contents of a fifty cent bottle are not worth ten cents.

*Kardere.*—Claimed by the manufacturer, H. S. Petersen and Company of Chicago, to be a rheumatism cure. It consists of:

Cane Sugar.....	84.71 %
Quinine Sulphate.....	4.55 %
Tartaric Acid.....	6.45 %
Iron Compound.....	4.29 %

This mixture, in addition to being useless in rheumatism, is exorbitantly sold for twenty-five times the cost of the ingredients.

*Kargon Compound.*—The purchaser of a bottle of this hodgepodge finds the following statement in the accompanying circular: "As an act of humanity, recommend this to your suffering relatives." It seems to us that the "act of humanity" would affect the manufacturer more than the "suffering relatives" as additional unearned profits would then be added to his exchequer. The "compound" sells for fifty cents and contains four cents worth of potassium acetate, alcohol and vegetable extracts.

*Kinlth Beauty Cream.*—The U. S. Department of Agriculture analyzed this product and found it to contain ammoniated mercury 14.72% and bismuth sub-nitrate 5.78%. They then condemned it as misbranded for the reason that it was not "absolutely harmless" as declared by the manufacturer.

*Kosine.*—This stuff sells for \$1.50 a pint although the contents have an actual value of not more than ten cents. It is sold as a "reliable remedy for Epilepsy," although there is no drug known that will cure this disease, and depends for its action on sodium bromide, ammonium bromide and antipyrine.

*Kulux.*—Falsely advertised as a "skin food" by the Kulux Manufacturing Company, of Rochester, N. Y. It is a simple mixture of the following substances that is worth four cents and is sold for fifty cents.

Zinc Oxide.....	7 %
Bismuth Sub-Carbonate.....	5 %
Glycerine.....	10 %
Water.....	76 %

*Limestone Phosphate.*—Chemically, there is no such compound as limestone phosphate and this name apparently has been used in the advertising to mislead the public into the belief that they were buying an unfamiliar product with exceptional medical qualities. On the label of the package, however, the word "BRAND" appears between "limestone" and "phosphate" and the pure food law is therefore not violated. Analysis shows this "hot

water assistant" to be a common and cheap effervescent mixture, depending for its principal action on ordinary sodium phosphate. The contents of a thirty-five cent can are not worth five cents.

*Lung Germine.*—A four per cent solution of sulphuric acid in water and alcohol. The cruelly vicious practice of dosing the unfortunate sufferer from tuberculosis with this mixture is almost beyond comment. Needless to say five dollars worth of "this treatment" has a value of less than fifteen cents.

*Luzor.*—A simple mixture of boric acid and zinc oxide advertised by H. S. Petersen and Company as an eczema remedy and sells for twenty-five times the value of the ingredients.

*Magnesurate Compound.*—According to the manufacturers of this combination, it "corrects heartburn and distress after eating." Certainly it does—sometimes—and so also does baking soda. A fifty cent package contains two cents worth of the following mixture:

Sol Soda.....	20%
Calcium Carbonate.....	30%
Magnesium Oxide.....	47%

*Magnex.*—The Magnex Remedy Company, of Noblesville, Indiana, would have us believe that their product is "Nature's assistant for the blood, liver and kidneys." It is a mixture of sulphur, potassium sulphate, magnesia, magnesium citrate and magnesium tartrate which, although sold for fifty cents, costs but two.

*Marmola.*—Both dangerous and fraudulent in that dried thyroid gland is the active principle and the contents of a fifty cent package are worth but two.

*May-O-Tone.*—Even if an equal mixture of epsom salt and borax would be a "protection against tan, freckles and sunburn," we would prefer to buy it as such for about two cents instead of May-O-Tone for fifty.

*Mayr's Stomach Remedy.*—Geo. W. Mayr formerly claimed this combination would "remove gall stones without operation" but now he modestly asserts it to be only a "stomach remedy." The principle ingredient has always been olive oil, but the powder accompanying it has changed in composition several times as our first analysis showed sodium phosphate, a little later epsom salt and finally rochelle salt. These changes, however, have not affected the price or the approximate value of the ingredients as the former has remained one dollar and the latter fifteen cents.

*Mercolized Wax.*—The Dearborn Chemical Company advises the beauty seekers that "the new and rational way" to improve the complexion, is to take off the old one with Mercolized Wax. In common with Kintho Beauty Cream and Stillman's Freckle Cream, this ointment contains ammoniated mercury and is therefore harmful. A sixty-five cent package contains about five cents worth.

*M. I. S. T. No. 2.*—The American Medical Association reports that this preparation apparently is essentially an aloes-mercury mixture and whatever therapeutic power it may possess must be due principally to these drugs.

*Modene.*—A depilatory with the following composition:

Talc.....	65%
Magnesia.....	20%
Calcium Sulphide.....	9%

(See *Delatone.*)

*Mother's Friend.*—The Federal Government declared this stuff misbranded because it consisted of oil and soap and therefore would not "shorten the duration of labor" or "assist in the safe and quick delivery." Oil may smooth troubled waters and "soft soap" may be used to advantage under some conditions but we fail to see how either can materially aid child birth.

*Nature's Creation.*—Several years ago, according to the Journal of the American Medical Association, this concoction was sold as a cure for syphilis. We presume, however, that the tuberculous are more easily duped than the syphilitic, for the preparation is now sold to them under as greatly unwarranted claims as ever before. It is a six per cent solution of potassium iodide in water containing a small amount of alcohol and vegetable extracts, and sells for five dollars although the value of the ingredients is but twenty-five cents.

*Neroxin.*—A powder containing 55% borax and 25% soap that is sold under the absurd claim of being a blackhead remover. A package containing three cents worth of such a mixture is thus sold for fifty.

*Nervine.*—A mixture of camphor, glycerine and valerian that is "recommended for nervousness and epilepsy." In this case four cents worth of ingredients are sold for fifty.

*Odor-O-No.*—A pernicious solution containing 20% aluminum chloride that is sold for fifty cents, although the ingredients are worth but two.

*Olive Tablets.*—Olive Tablets are advertised as "a substitute for calomel" and depend principally on aloes for any action they may have.

*On-Riah.*—Another depilatory containing about three cents worth of ingredients that is sold for fifty cents. The composition is as follows:

Barium Sulphide.....	43%
Talc.....	17%
Starch.....	40%

*Optona.*—By inference, the advertisements of this preparation convey the impression that eyeglasses may be discarded if the eyes are bathed in a solution of Optona. By means of this blatant falsehood, one cent's worth of sodium polyborate is sold for fifty cents.

*Orrine.*—Fraudulently advertised as a "reliable remedy for the treatment of the liquor habit." It is a simple mixture of 82% sugar, 17% sal ammoniac and an exceedingly slight trace of gold chloride. A one dollar box contains about three cents worth of ingredients.

*Othine.*—Another dangerous "freckle remover." It contains about five cents worth of ammoniated mercury, a little grease and sells for one dollar.

*Parnotis.*—Another fraudulent "flesh reducer" that consists of 76% baking soda and 21% Glauber's salt. It sells for fifty cents yet the ingredients are worth but one.

*Partina.*—Three cents worth of borax put up in package form by the R. Partina Co., of Boston and sold for fifty cents.

*Penetrol Concentrated.*—This solution made by the Aedine Chemical Company, Pittsburg, is a simple tincture of iodine of one half standard strength. It sells for fifty cents but can be made for five.

*Perspi No.*—A simple mixture of the following:

Boric Acid.....	20%
Salicylic Acid.....	22%
Talc.....	42%
Calcium Carbonate.....	10%

The amount of this mixture in a twenty-five cent package costs but two cents.

*Perspirine.*—Under this name, two cents worth of the following simple combination is sold for twenty-five cents:

Borax.....	13%
Talc.....	62%
Zinc Oxide.....	4%

*Peruna.*—Several years ago, according to the Journal of the American Medical Association, the federal authorities ruled that Peruna did not contain sufficient medicine to prevent it being used as a beverage. The manufacturer thereupon added a laxative and the sales diminished. This seems to prove that Peruna possesses no medicinal qualities, other than laxative, and is an alcoholic stimulant.

*Pinex.*—An ordinary cough syrup containing an increased amount of chloroform. A fifty cent bottle is not worth more than five cents.

*Pinus.*—One of the most ridiculous fakes we have discovered. It sells for two dollars and a half as a cure for rheumatism and consists of five cents worth of turpentine and magnesia.

*Plain Yellow Minyol.*—Two cents worth of a pasty mass of salt water and grease that sells for ninety cents when called Minyol and advertised to "Promote a healthy, vigorous growth of hair, cure dandruff, itching scalp and falling hair."

*Plant Juice.*—Plant Juice is a concoction of some twelve different drugs, in a menstruum containing 20 per cent alcohol. It seems that the manufacturer has added a small portion of each of the drugs with which he was acquainted in the vain hope that one of them might have some effect. Since six of them, however, are laxatives, it is evident that its principal action is due to their purging effect and the stimulation from the alcohol. The continued use of Plant Juice is therefore harmful, and the price charged is ten times the cost of the ingredients.

*Po-Tassa-Fras.*—Practically identical in composition with "Nature's Creation" and the remarks concerning it apply equally to both.

*Price's Canning Compound.* Boric acid with variations. Sometimes with salt, sometimes with sodium benzoate and sometimes with both but no matter what the variable, the powder is always injurious and illegal when used in food products intended for the market. A dollar's worth of Mrs. Price's Canning Compound is worth about ten cents as boric acid.



**Pyroxin.** "Makes eyebrows long and silky." Such is the absurd claim made by the Sheffield Pharmacal Company for their product which consists of two cents worth of perfumed vaseline and is sold for one dollar.

**Quintone.**—Consists of:

Sodium Thiosulphate.....	80%
Borax.....	20%

This simple combination sells for seventy-five cents although the ingredients cost but two.

**Quinzoin.**—

Baking Soda .....	37%
Quassia Bark .....	60%
Quinine .....	trace

By asserting that this mixture "corrects profuse dandruff, excess oiliness and other defects," H. S. Petersen and Company induce some credulous people to buy it at twenty times the value of the ingredients.

**Rumo-Sac.**—This outrageous fraud is a cheap cloth sack containing about one half an ounce of powdered alum. The cost is one dollar and the method of administration is to wear it suspended from a string around the neck. It is almost inconceivable that any one now lives with sufficient superstition to believe such nonsense.

**Rose Kayloin.**—Consists of one cent's worth of sulphur and potassium carbonate. The selling price is fifty cents. It will not eliminate skin troubles as claimed by the manufacturer.

**Sanatogen.** This so-called "Re-Creator of Lost Health" consists of ninety-five per cent casein and five per cent sodium glycerophosphate. Casein is probably better known as cottage cheese and the other ingredient, although of imposing name, can be purchased for twenty-five cents an ounce. Cottage cheese, no doubt is a good food, but why buy Sanatogen at the rate of \$4.50 a pound when a mixture of cottage cheese and sodium glycerophosphate in the same proportion, can be had for thirty cents.

**Sargol.**—A useless mixture of about three cents worth of sodium, potassium and calcium hypophosphites together with dried albumen, that is sold for one dollar. The manufacturer's claim that Sargol will "add ten to twenty-five pounds of fat in two weeks" is utterly false.

**Sarsene.**—A concoction for which imaginary claims of "Blood Remedy" are made by the manufacturer. It consists of the extracts of senna, sarsaparilla etc., and is sold for fifty cents a bottle, the contents of which are worth but three.

**Sartoin.**—The Globe Pharmacal Company would have us believe that this preparation "beautifies the complexion." It is a mixture of boric acid and epsom salt in the proportion of one to nine and sells for fifty cents, yet the ingredients cost but two.

**Sayleen.**—The name, composition and price of this stuff is a vicious joke. It certainly is "saline" for it consists of nothing but common salt and is sold for a hundred times its actual value under the most unwarrantable claims.

**Spurmax.**—This powder is entirely epsom salt and sells for fifty cents although it contains but two cents worth.

*Saxolite*.—"Wrinkles and sagging are corrected and the face feels so refreshed and snug like." So does the manufacturer's purse when silly beauty seekers pay sixty-five cents for three cents worth of alum and epsom salt that compose Saxolite.

*Saxo Salve*.—An ordinary antiseptic zinc oxide ointment containing sulphur. The ingredients of a fifty cent package are worth about five cents.

*Shac*.—These wafers, manufactured by Frederic Stearns and Co., of Detroit, are typical examples of those pernicious acetanilid mixtures that are exceedingly dangerous.

*S. S. S.*—Just what these letters stand for is not clearly set forth on the label or in the circular accompanying the bottle but exceedingly strong inference is given, however, that "Swift's Syphilis Specific" is meant. To mislead individuals infected with a disease worse than leprosy into the belief that it can be cured by such dosing appears to us to be a heinous crime against society.

*Stillman's Freckle Cream*.—The Stillman Freckle Cream Company of Aurora, Ill., manufactures three cents worth of ingredients into this ointment that sells for fifty cents. It is very similar in composition and effects with Kintho Beauty Cream.

*Sulpho Solution*.—A simple solution of sodium sulphide in water. It is similar to all depilatories and sells for the outrageous price of one dollar. (See *Delatone*.)

*Swamp Root*.—The British Medical Association reports this preparation to contain 48.9 per cent solids and 10.5 per cent alcohol. Since this amount of solids includes 46.5 per cent of sugar, it is impossible for the concoction to contain more than a slight quantity of drugs. The drug appears to be cascara sagrada, principally, and we must therefore conclude that Swamp Root is but a weak laxative syrup containing ten per cent of alcohol.

*Sweeto Powder.*

Zinc Oxide.....	32%
Starch.....	45%
Talc.....	21%

Three cents worth of this mixture is sold for twenty-five cents when labelled "Sweeto Powder."

*Syrup of Figs*.—Contrary to the inference of the label, the active principal of this preparation is not an extract of figs but of Senna. This ingredient is a strong cathartic and its continued use is dangerous.

*Tan Lac*.—Tan Lac contains extracts of barberry, pareira brava, buckthorn, licorice and gentian together with 18% of alcohol. The principal effect of this concoction, therefore, is simply that of a physic and stimulant. The continued use of it is harmful and the price charged exorbitant, being ten times the cost of the ingredients.

*Thargol Compound*.—This is a solution of strontium bromide 18%, calcium bromide 4%, flavored with coumarin and vanillin. A fifty cent package contains ingredients to the value of three cents. Bromides produce a deep stupor and their administration in the hands of anyone but a physician is dangerous.

*Therox.*—Identical in exorbitant price and composition with Am-O-Tone.

*Thomine.*—Thomine is identical in many ways with Sartoin. In fact the only variance we can discover is the more ambiguous claim that it is "for the treatment of the skin" and the price of seventy-five cents instead of fifty.

*Tincture Cadomene.*—This concoction contains extracts of cinchona and damiana together with phosphorus which is probably in the form of hypophosphites. The statement "gives increased weight, pink cheeks and restores ambition" is an unwarranted exaggeration of the powers of very ordinary drugs. A sixty cent bottle contains about four cents worth of ingredients.

*Tiz.*—A preparation that contains not more than three cents worth of alum, tannic and salicylic acids yet is sold for twenty-five cents.

*Tonsiline.*—This preparation is a solution of potassium chlorate and chloride of iron, sweetened with saccharin. Such a mixture as this can be made for fifty cents a gallon, yet by the fake claim that it will cure sore throat, the unwary are induced to buy it at the rate of sixteen dollars a gallon.

*Toris Compound.*—Claimed by the manufacturer to be a "Rheumatism Eradicator and System Builder" and consists of sugar 67% sodium salicylate 9% and saltpeter 22%. The statements of the manufacturer are decidedly false and misleading. Sodium salicylate may be used in the treatment of rheumatism but it certainly is not an "eradicator" and although sugar is a good food, the amount consumed in taking "Toris Compound" is almost negligible. The ingredients in a fifty-cent package are not worth more than two cents.

*Traxo.*—A cheap laxative solution of the extracts of dandelion and cascara. It sells for one dollar a bottle, yet the materials of which it is composed are worth but fifteen cents.

*Tyree's Compound Antiseptic Powder.*—A very simple mixture containing seventy per cent boric acid and twenty-seven per cent zinc sulphate. The contents of a twenty-five-cent package are possibly worth two cents.

*Vapo Cresolene.*—An ingenious method of selling common cresol for three or four times its value under the name of "Cresolene." Extravagant claims are also made for this very common antiseptic.

*Varlex.*—Contemplation of this fake "liquor and tobacco habit remedy" would be amusing were it not for the fact that those deluded unfortunates who purchase it are the least able to waste their money. A fifty cent package contains one cent's worth of milk sugar and nothing more.

*Vick's Croup and Pneumonia Salve.*—A simple mixture of camphor, menthol and essential oils in vaseline. The very name of this preparation is dangerous for the reason that the uninformed will rely upon it and not a physician, for the very dangerous diseases, croup and pneumonia.

*Vilane Powder.*—Called a "catarrh cure" by the manufacturers and sold for fifty cents although the following ingredients of which it is composed, are worth but two:

Salt.....	42%
Baking Soda.....	32%
Borax.....	14%
Sodium Salicylate.....	11%

Needless to say it will not cure catarrh.

*Vinol*.—The Connecticut Experiment Station has made a thorough investigation of the properties of this preparation and a similar one, Waterbury's Metabolized Cod Liver Oil Compound. The investigation is summarized as follows: "The experiments with Vinol and the Waterbury Compound show very conclusively that these cod liver oil wines do not possess the nutrient qualities of cod liver oil and anyone using them as a nutrient in place of cod liver oil is certain to be grievously disappointed in the results. The alcohol and iron or alcohol and malt extract, may show some tonic effects but when strength is needed and actual nutriment is desired some other means is necessary than the use of these cod liver oil wines.

*Waterbury's Metabolized Cod Liver Oil Compound.*

(See *Vinol*.)

*Williams Pink Pills*.—A fifty cent box of these pills contains about three cents worth of iron carbonate, salts of tartar, magnesia and licorice. It is singular that the manufacturers of these pills and those of Sargol claim identical results for their respective products, although none of the ingredients of one are present in the other. The only similarity we can detect is the outrageous price charged for the product.

*Wyeth's Sage and Sulphur Hair Remedy*.—The advertisements of this preparation state that it "imparts color to faded and gray hair" or in other words is a hair dye. In addition to its being sold for ten times the cost of the ingredients, it is dangerous because of the sugar of lead it contains.

*Zeero Powder*.—This powder is sold for twenty-five cents a package although the contents are worth but two. It is advertised "For excessive perspiration" and has the following composition:

Borax.....	21%
Zinc Oxide.....	13%
Calcium Carbonate.....	15%
Talc.....	35%

*Zintone*.—By means of the ridiculous claim that Zintone "makes any skin bloom out in the most angelic tint and purity," the Cooper Pharmacal Company deludes the simple-minded into paying fifty cents for three cents worth of stearic acid, soap and borax.

## A REPORT OF THE DAIRY PRODUCTS INDUSTRY OF INDIANA.

A. W. BRUNER.

With great pleasure and no little enthusiasm, but with frequent troublesome interruptions, we have been engaged in a special survey of the manufacturing plants of dairy products since January first of this year. In that time we have inspected 594 plants of various kinds pertaining to the business, now grown to enormous proportions in Indiana. Of the 594 places inspected three have burned—two creameries and one ice cream plant. Forty-eight creameries—all of the co-operative type—victims of bad business methods and the encroachments of the centralizer plant have recently gone out of business.

The 132 creameries inspected produced in 1915, 32,266,782 pounds of butter of which 98.2% was from pasteurized cream. Fourteen plants did not pasteurize but have since installed pasteurizing equipment. Indications are that the output for 1916 will be at least 15% greater than last year.

Two hundred and thirty-five ice cream plants made 4,112,332 gallons of ice cream of which more than 92% was from a pasteurized mix. Forty-two of the plants did not pasteurize but these made less than one-thirteenth of the total output. This includes all the small confectioners and druggists who make their own ice cream. All of them however, have either installed equipment for pasteurizing, or are purchasing pasteurized stock or are buying their ice cream already manufactured. The output for 1915 was not more than 60% normal.

One hundred and fourteen milk depots sold last year 14,027,773 gallons of milk, of which 96.1% was pasteurized. Fifteen small plants did not pasteurize.

There are 97 cream stations which have been inspected and from these butter-fat has been shipped out of the state in quantity to make more than four million pounds of butter, all of which should be made into butter in Indiana.

Thirteen plants produced condensed milk to the amount of 2,347,553 gallons. One new plant started at Yorktown, November first with the product from 3,500 cows guaranteed. A grand picnic and free chicken dinner was given on the day before the plant started. This plant is owned by the Western Reserve Milk Condensed Company of Cleveland, Ohio, and is their sixth plant—their first in Indiana.

Two cheese factories inspected manufactured last year 125,942 pounds of cheese, one plant making more than four-fifths of this amount.

The different plants scored as follows:

Kind of Plant.	Number In-spected.	Number Good.	Number Fair.	Number Poor.	Number Bad.
Creameries.....	132	71	55	5	1
Ice Cream Plants.....	235	59	124	49	3
Milk depots.....	114	47	45	18	4
Cream stations.....	97	18	29	46	4
Condensed Milk Plants..	14	11	3	0	0
Cheese factories.....	2	0	2	0	0
Totals.....	594	206	258	118	12

Several of the plants are very near the excellent grade. A number of plants miss the grade of good either in equipment or the manner of gathering the stock. All the "poor" places received stringent orders and all the "bad" places were condemned and closed, the "bad" creamery having been prosecuted and compelled to quit the business and give bond not to again engage in the business.

All the plants have by this time been equipped with pasteurization outfits and are doing the work with more or less efficiency.

It is no longer a question of forcing the pasteurization of dairy products—it has been accomplished without the least bit of disturbance or friction. It is now a question of sanitation in some of the plants. This remark applies particularly to the way cream is handled in many of the cream stations. Some of them are models and cannot be improved upon. But in many places cream has been handled in the same compartment with poultry, eggs, junk and in grocery stores. This is unpardonably wrong, and it would help us mightily in our work if the manufacturers' association would go on record against this practice.

My investigation discloses the fact that the milk and cream supply is gathered from about 70,000 farms—that many farms making regular deliveries of milk and sweet cream daily, and of cream for butter one and one-half deliveries per week. It discloses the further fact that the general average is 3.5 cows to the farm. There is room for the producing end on the farm, to be multiplied many times to the mutual benefit of all the people of the state.

Seventeen plants have baths for their operators.

One hundred and nine (109) have sanitary flush toilets. Twenty are in the yard.

Seventy-five have wash and dressing rooms.

One hundred and seventy-five plants have pasteurizers.

One hundred and two plants purchase their product already pasteurized.

We found ten clarifiers, twenty-one emulsifiers and six homogenizers in use.

One hundred and four plants were equipped with sanitary pumps and pipes. All plants not so equipped are directed to install the sanitary type.

Only thirteen automatic registers were found.

Very little is known by the average operator concerning the health of the cattle, or the health or cleanliness of the dairyman, or the sanitary condition of the dairy barn and milk house, though a few exceptional firms are employing regular inspectors for this work.

One whole milk creamery was found in LaGrange county, at Lima.

Three co-operative creameries in the state still survive the onward march of the centralized plants.

About a dozen creameries in the state do not use neutralizer and about the same number do not use a starter.

The big problem is the satisfactory collection of raw material.

The investigation shows Indiana to be a real Dairy State, though the surface of possibilities has only been scratched. It is a big business, with big men engaged in it, and a big future before it, but the biggest thing about the whole business—and the best thing—to my mind, is the big spirit of the operators.

This survey has been, in fact, only a preliminary survey to get acquainted with the operators and a more definite line on the business. But it has already been productive of much good. We expect the follow up visits to show surprising results for the betterment of the industry. The great length to which some manufacturers have gone in the way of equipment and sanitation, the splendid spirit of co-operation they have shown and the "forward looking" vision which all have, and which must be manifest to even the casual observer, augurs for this great, and rapidly growing industry better days, better product, better profit and a better confidence on the part of the purchasing public.

## CIRCULAR LETTERS AND LETTERS OF INFORMATION.

To facilitate the enforcement of the several laws, and as well to explain their provisions that manufacturers and dealers may the better comply with them, the department has followed the practice of issuing circular letters. These letters are sent to the person or trade interested and are given general publicity by the press of the state.

During the year past a number of such letters have been promulgated and special notices sent to interested parties. Such notices and letters as are of interest follow herewith:

### NOTICE TO CREAMERY OPERATORS, BUTTER MAKERS AND PACKERS AND HANDLERS OF DAIRY PRODUCTS.

I am advised that in some instances creamery operators are purchasing butter on the market or from other creameries and repacking it for sale in their own cartons. This practice is in violation of the Pure Food Law. Unless the butter so packed and sold is made in the plant owned and operated by the person or firm whose name appears upon the package, it is misbranded. When butter is so purchased and packed objection will not be made to its sale if the label reads, "Manufactured for . . . . . Creamery Company."

Please see that all labels advise the customer of the facts and that they comply in every particular with that portion of the pure food law which relates to misbranding.

H. E. BARNARD,  
*State Food and Drug Commissioner*

March 15, 1916.

### NOTICE TO SALOON KEEPERS AND SOFT DRINK VENDERS.

Saloons and soft drink parlors shall be operated in conformity with the pure Food and Sanitary Food Laws as follows:

All glasses shall be thoroughly washed in running water and sterilized before use.

All food displayed for sale or free lunch shall be thoroughly protected by glass, wood or metal covers.

All knives, forks, etc., shall be washed and sterilized before use, and each patron shall have clean individual dishes and utensils.

All toilets and urinals shall be in rooms separate from bar or dining rooms. They shall be thoroughly ventilated, provided with self closing doors and shall be kept clean.

All beer and pop bottles shall, when emptied, be returned to the case neck down and stored under sanitary conditions until removed.

All persons who handle food or drinks shall be free from disease and shall pass a medical examination to determine that fact. The employment of any person suffering from an infectious or contagious disease is in violation of the Sanitary Food Law and both the employee and employer are liable to fine and imprisonment.

H. E. BARNARD.  
*State Food and Drug Commissioner.*

March 25, 1916.



County, City and Town Health Officers, State Food Inspectors and all other officers whose duty it is to enforce the Pure Food and Sanitary Law, will be governed by this notice.

#### NOTICE TO ICE CREAM MANUFACTURERS.

No food is more subject to contamination and spoilage than ice cream. The raw product is gathered under conditions which conceal the identity and which, in many instances, subject it to contamination.

Ice cream made from any material which is not of high quality is itself of low grade and unfit for food. The pasteurization of cream and ice cream stock makes the product safe.

"In the interest of public health and better business, you are hereby ordered to pasteurize all cream and stock used in the manufacture of ice cream and all other frozen products."

Pasteurization shall be deemed to be heating to a temperature of at least 145°F. for thirty minutes or 165°F. for thirty seconds. The holding process is recommended.

This order shall take effect on and after July 1st, 1916.

H. E. BARNARD,  
*State Food and Drug Commissioner.*

April 11th, 1916.

#### TO THE FARMERS AND EGG DEALERS OF INDIANA.

##### CIRCULAR LETTER No. 23.

The preventable loss in the quality and value of eggs incurred between the producer and consumer runs into millions of dollars annually in our state alone, and the farmer and consumer have to bear most of the burden; the producer gets less per dozen because every bad or stale egg thrown out by the jobber tends to reduce the purchase price, while the consumer has to pay a higher price for the eggs that finally reach him.

There is no money in any egg save a good egg and when the farmer realizes that he and not the grocer and huckster to whom he sells must stand the loss for bad eggs, he will be as careful of their quality as he is of the quality of his wheat or hogs.

If the suggestions below are followed eggs will be marketed in better shape and will yield a better profit to the producer.

Provide plenty of clean, dry nests for your hens.

Gather the eggs daily in cool weather and twice a day in hot or rainy weather.

Do not wash eggs. Use the dirty and small eggs at home.

Keep eggs in a cool, dry place, which is free from odors.

Don't sell eggs which have been in an incubator.

Market your eggs daily, if possible; if not, every other day.

Don't sell eggs which were found in a stolen nest. Use them at home.

Keep the eggs out of the sun when taking them to town.

Don't keep eggs near oil, onions, etc., as they readily absorb odors.

Kill or sell all roosters as soon as the hatching season is over.

The Indiana Food Law forbids the sale or offering for sale of eggs which are in any degree decomposed, putrid or rotten. Eggs showing spots, blood rings or rots are unfit for food. Egg producers, hucksters and dealers are urged to candle all receipts and to throw out all bad eggs to prevent expense in handling and shipping eggs which must ultimately be discarded.

Food Inspectors and local health officers are charged with the enforcement of the Pure Food Law. All citizens and dealers are requested to report the sale of bad eggs to

April 22, 1915.

H. E. BARNARD,  
*State Food and Drug Commissioner,*  
State House, Indianapolis, Indiana.

#### NOTICE TO CREAMERY OPERATORS AND BUTTER MAKERS.

A resolution has been introduced in Congress which comments upon the unsanitary condition of creameries and instances of the spread of disease through butter are constantly being cited by sensational newspaper writers. Such agitation is detrimental to the dairy industry and the only way to stop destructive publicity is to adopt constructive policies.

I am very glad that the reports I am receiving from Inspector Bruner show that Indiana creameries are, for the most part, sanitary and that they are producing good butter. In fifty-three plants already inspected which manufactured last year 14,468,150 pounds of butter, 97.76% of the out-put was made from pasteurized cream.

Indiana is proud of her dairy industry and her creameries and the manufacturers of dairy products are cooperating to put these industries on even a higher standard.

To accomplish this it is up to the butter makers of Indiana to make 100 per cent, of their out-put from pasteurized cream, and in order that we may do this and so make it possible to publish wisely the statement that all Indiana butter is surely safe, I am issuing the following order:

"On and after July 1st, 1916, the manufacture of butter from un-pasteurized cream is prohibited. This order applies to all creameries and commerical dairies producing butter for general public sale."

April 30, 1916.

H. E. BARNARD,  
*State Food and Drug Commissioner.*

#### INDIANA STATE BOARD OF HEALTH.

Indianapolis, Indiana, July 6, 1916.

Secretary, Fair Association.

My Dear Sir:—

The Health Officers and Sanitary Inspectors find much cause for complaint of unsanitary conditions at the lunch and beverage stands operated at fairs and other places where large crowds gather for brief periods. Before you sell space or concessions at your Fair will you require of the applicant that he meets the following conditions.

Beverages other than hot drinks shall not be sold or dispensed except in paper cups which are used once and then destroyed.

All food stuffs must be thoroughly protected from dust and flies all the time.

Candies, crackerjack, etc., must not be made on the grounds except inside of buildings and then only in rooms set apart for that purpose.

Griddles for frying sausage, hamburger, etc., must be covered. Meats must be kept in good condition by the use of ice. The sale of tainted meats or other unsound food means arrest and cancels all contracts.

All dishes used in dining halls and tents must be thoroughly washed in boiling water and cheap, ignorant, diseased or careless help shall not be employed.

Ice cream cone and lemonade carriers must be covered.

Food handlers must have certificates of good health.

We expect of the Fair Association:

An adequate supply of pure drinking water served through sanitary fountains.

*The use of the common drinking cup is in violation of law.*

An adequate supply of covered garbage cans which are to be emptied at least once a day and more frequently if necessary.

The toilets and urinals must be kept sanitary, clean and decent. *They must be made fly proof.*

These requirements are all in the interest of the public health. They are all required by law or by rules of the State Board of Health. Will you kindly see to it that your concessioners understand what they are to do and that they do it?

Thanking you for your co-operation, I am

Yours very truly,

H. E. BARNARD,

State Food and Drug Commissioner.

#### NOTICE TO EGG BUYERS, MERCHANTS, HUCKSTERS, AND OTHERS ENGAGED IN THE PRODUCTION AND HANDLING OF EGGS.

Complaint is being made that that Section of the Pure Food Law prohibiting the sale of decomposed, putrid or rotten food is constantly violated by the sale of bad eggs. You are advised that farmers and dealers who sell, or have in their possession for sale, eggs which are not sound are liable to prosecution for violation of the Pure Food Law. For your own protection buy loss off and handle only candled eggs.

Print and distribute widely the following notice.

#### WARNING.

B A D E G G S.

THE INDIANA PURE FOOD LAW FORBIDS THE SALE OR OFFERING FOR SALE  
OF EGGS WHICH ARE IN ANY DEGREE DECOMPOSED,  
PUTRID OR ROTTEN BY

Paragraph 4, Section 2, of the Law which reads: An Article shall be deemed as adulterated: In the case of food \* \* \*

If it consists in any proportion of filthy, decomposed, putrid or rotten animal \* \* \* substance.

Section 4 makes it the duty of all peace and health officers to seize eggs found to be unwholesome and which are intended for sale or offered for sale.

Section 10 of the Act provides that \* \* \* Any person, persons, firm or corporation violating any of the provisions of this Act, shall upon conviction for the first offense, be punished by a fine of not less than \$25.00 nor more than \$30.00; for the second offense, by a fine of not less than \$25.00 nor more than \$100.00; and for the third and subsequent offenses, by a fine of \$100.00 and imprisonment in the county jail for not less than thirty nor more than ninety days.

Inspectors of the Food and Drug Department of the State Board of Health and all County, City and Town Health Officers are instructed to enforce these provisions of the law.

Egg Producers, Dealers and Shippers will take Notice that the sale of Bad Eggs, or of Stale or Storage Eggs as Fresh Eggs is in violation of the law and that prosecutions will be instituted wherever evidence of violations can be secured.

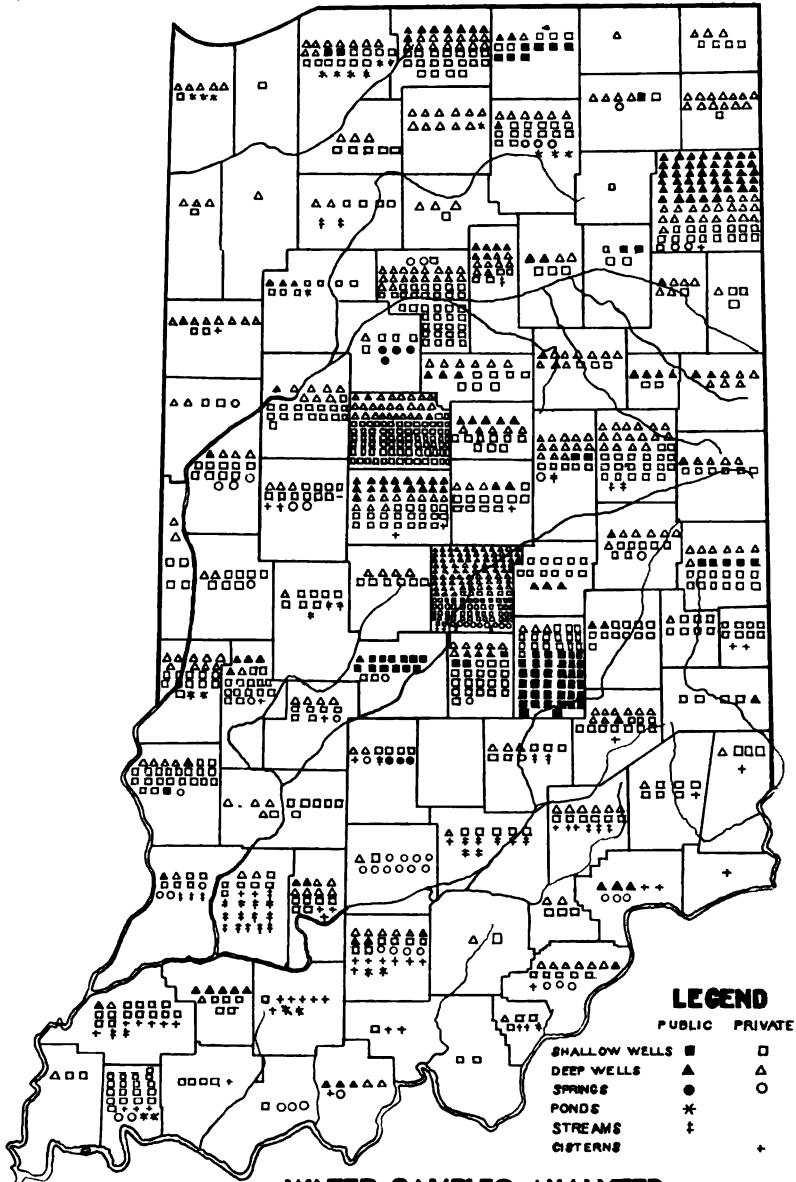
H. E. BARNARD,  
*State Food and Drug Commissioner,*  
Indianapolis, Indiana.

July 20, 1914.

Report

FROM THE

Water Laboratory



### WATER SAMPLES ANALYZED

OCTOBER 1-1915 to OCTOBER 1-1916

## GENERAL REPORT FROM THE WATER LABORATORY.

H. E. BARNARD, Ph.D.

Sixteen hundred and nine samples of water were analyzed during the year ending September 30th. Thirteen hundred and thirty-three of these samples came from private supplies and were submitted either by the owner of the supply at the suggestion of his physician or by the town or city health officers. Two hundred and seventy-six samples were collected from public supplies either by health officers or water works officials. Of the total number of samples analyzed 998 were found to be of good quality; 618 were condemned as bad and 33 were listed as doubtful. In percentage terms 62% were found to be of good quality. In 1915 63.5% of all the waters examined were classed as good and in 1914, 62% were so reported. 38.4% were bad. In 1915, 38.8% were so listed. From the time the laboratory was opened, the percentage of good and bad waters has remained almost constant. The figures for the past year are almost identical with those of other years. The source of the samples is so varied and so thoroughly represents the water supplies of the state that we believe it may be stated without fear of contradiction that the private water supplies of Indiana are of doubtful quality and that the chances of getting a safe drink of water from the average supply is as two to one. The condition cannot be remedied quickly. The average householder is not easily convinced that his water supply is polluted. Until the health officer of the community deliberately sets about closing bad wells, they will continue to be used.

Of the 1,609 samples examined, 772 were taken from shallow wells, 577 from deep wells, 50 from streams, 56 from springs, 76 from cisterns, 18 from ponds and lakes and 60 from miscellaneous and undetermined sources. But 75 bad wells were found among the 442 deep wells used as private supplies. Four hundred and seventy-six shallow wells were bad, while but 263 were good. Thirty-two bad and 44 good cistern waters used as private supplies were examined. In most cases the cisterns were evidently polluted by washings from roofs. Unless purified by adequate filtration, cistern water is unclean and not potable. Of the 49 spring supplies, 37 were listed as good and 12 as bad. The fact that water flows from the ground in the form of a spring

does not insure its quality. Many springs are but surface supplies and are subject to the same forms of pollution as the shallow well.

One hundred and thirty-five deep wells used as public supplies were analyzed and 124 were found to be of good quality. Of the 66 shallow wells examined 52 were good and 14 were reported as bad. Of the 50 stream supplies examined 31 were found to be satisfactory and 19 were condemned. Five of the 7 spring supplies were satisfactory. Ten pond and lake supplies were good, while 8 were classed as bad.

A summary of the quality of the private supplies shows that of the 1,333 private water supplies sent in 736 were reported as good, 564 as bad and 33 as of doubtful quality. On the other hand 222 of the 276 public water supplies were found to be good, 54 bad and none were classed as doubtful.

The report from the Water Laboratory will show in full the studies made of the water supplies of the state. It will include reports of many investigations of sewage pollution of streams and ponds and will detail at length the work of the department in regulating the operation of purification plants.

The routine chemical analysis is of value in that it shows changed conditions in water supplies. We believe, however, that the bacteriological examination should be made as a check on the present condition of the water and because of that fact we are reporting this year more bacteriological studies than heretofore.



# WATER SUPPLIES INDIANA

1916.

**1609 Total number examined**

**772 Shallow wells**

**577 Deep wells**

**76 Cisterns**

**60 Miscellaneous**

**56 Springs**

**50 Streams**

**18 Ponds and lakes**

## Quality of Supplies

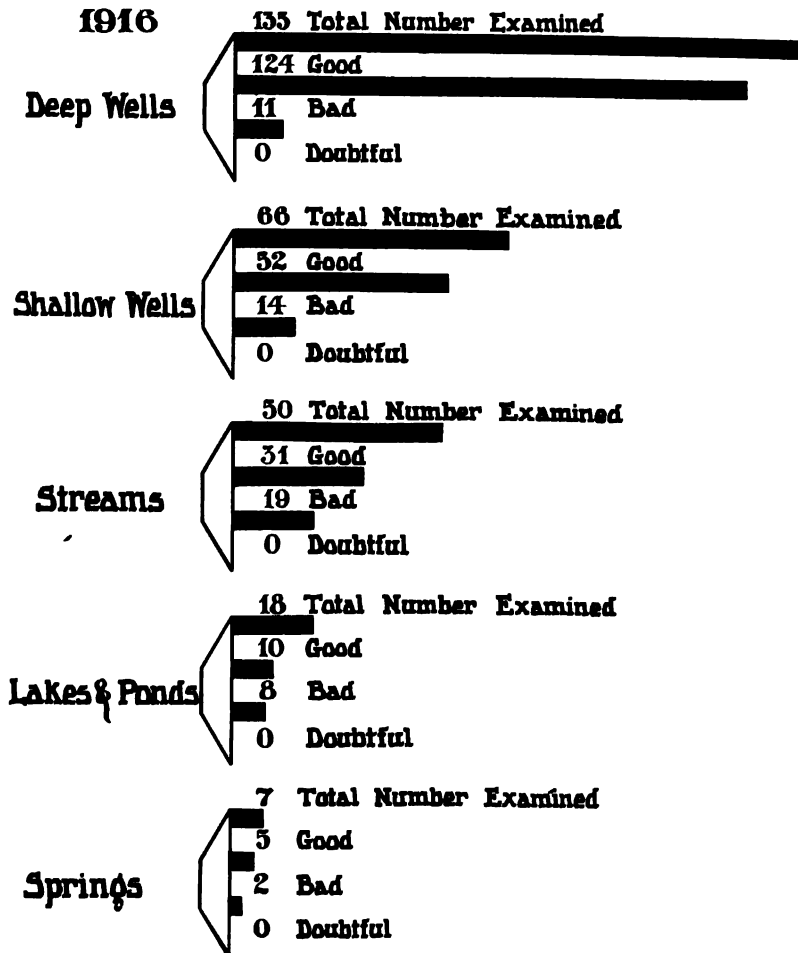
**1609 Total number examined**

**998 Good**

**618 Bad**

**33 Doubtful**

# CONDITION OF PUBLIC WATER SUPPLIES INDIANA



# **WATER SUPPLIES**

## **INDIANA**

### **Public Supplies**

1916

**276 Total number examined.**

**135 Deep wells.**

**66 Shallow wells.**

**56 Streams.**

**18 Lakes and ponds.**

**7 Springs.**

### **Private Supplies**

**1533 Total number examined.**

**706 Shallow wells.**

**442 Deep wells.**

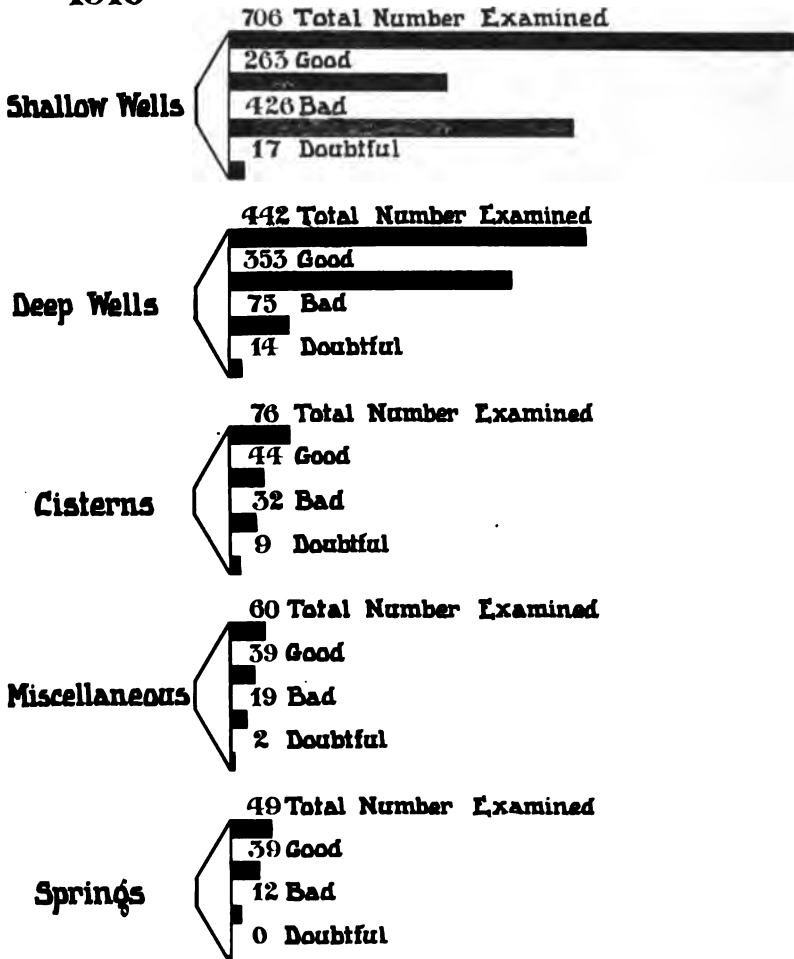
**76 Cisterns.**

**60 Miscellaneous.**

**49 Springs**

# CONDITION OF PRIVATE WATER SUPPLIES INDIANA

1916



## SPECIAL REPORT FROM THE WATER DEPARTMENT

JOHN C. DIGGS, Water Chemist.

For the first few years after the creation of the Water Laboratory the work of the Department was largely confined to the examination of samples of suspected supplies submitted by the health officers and citizens from the various sections of the state. This class of work rapidly grew until it reached a maximum in the year 1914. Since that date, while the number of samples submitted for complete sanitary analysis has remained practically the same, the work of making bacteriological examinations has grown very rapidly until in 1916 more than 500 samples were received. Sixty-three per cent. of this number were from the public water supplies of the state.

From 1908 to 1913 particular effort was directed toward determining the pollution of the various water courses of the state. This work included sanitary surveys of the southern end of Lake Michigan, the Grand Calumet River, the Ohio River, bordering Indiana, The Wabash River and White River. This work showed the very serious contamination of our streams and the dire necessity of the passage and enforcement of laws which would prevent the pollution of the water courses in such a fashion.

In 1914 and 1915 three very complete sanitary surveys of the private water supplies and general sanitation of three cities, Vincennes, Logansport and Noblesville were made. The profit to these cities by the disclosure of bad water supplies and other generally unsanitary conditions will be shown during the next several years by generally improved health conditions.

The work of the Department making recommendations regarding the improvement of public water supplies, the investigation of the operation of water purification plants and the investigation of local unsanitary conditions has gradually grown from the time the Department was instituted until at the present time it forms the major part of the tasks assigned to this division of the State Board of Health.

### REPORT OF SAMPLES SUBMITTED FOR BACTERIAL EXAMINATION.

During the year many samples have been received from water purification plants for the purpose of determining the efficiency of the purification processes. The number of such samples has been greatly increased over those sent to the laboratory during

past years. Such work is in addition to the very large number of samples examined in the "field" in connection with the special investigation of public water supplies or as a part of the routine of a sanitary survey of a watershed. Officials in charge of water works plants are realizing more and more all the time that it is absolutely necessary to operate a bacteriological control laboratory in connection with purification plants and even where such laboratories are installed, it is highly advisable to occasionally check up their work by submitting samples to the State Board of Health laboratories.

A considerable number of samples have been submitted from sources which supply water to interstate passenger carriers to determine if the supply complies with the bacteriological standard required by the United States Public Health Service.

Various other samples come from the public swimming pools connected with the gymnasiums, and sanitoriums of the state for the purpose of determining the bacteriological condition of such pools.

#### SUMMARY.

##### Source of Samples Submitted for Bacteriological Examination:

Samples from Public Water Supplies. ....	340
Samples from Private Water Supplies. ....	143
Samples from Swimming Pools. ....	38
Samples of ice. ....	10
Samples from streams. ....	4
Samples of sewage. ....	1

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Total Number of Bacteriological Samples. .... 536

#### SAMPLES FROM PUBLIC WATER SUPPLIES.

<i>Source</i>	<i>Number Submitted.</i>
Indianapolis. ....	83
West Baden. ....	45
Madison. ....	41
Aurora. ....	30
Terre Haute. ....	28
Shelbyville. ....	15
Washington. ....	15
Paoli. ....	13
Mishawaka. ....	12
Bloomington. ....	10
New Albany. ....	8
Princeton. ....	8
Warsaw. ....	8
Bluffton. ....	6

## SAMPLES FROM PUBLIC WATER SUPPLIES—Continued.

<i>Source</i>	<i>Number Submitted.</i>
Edinburg.....	6
Wabash.....	2
Indiana University.....	2
Elkhart.....	1
Tipton.....	1
Evansville.....	1
Martinsville.....	1
Hebron.....	1
South Whitley.....	1
Argos.....	1
Valparaiso.....	1
Total.....	340

## DEEP AND SHALLOW WELLS—1906-1916.

SOURCE.	Deep Wells.					Shallow Wells.				
	Good.	Bad.	Doubtful.	Total.	Per Cent. Unsatisfactory.	Good.	Bad.	Doubtful.	Total.	Per Cent. Unsatisfactory.
Private supplies 11 years	2,668	504	251	3,324	19.7	2,269	2,754	611	5,634	59.7
Public supplies 11 years	1,004	56	84	1,144	12.2	183	61	33	277	33.8
Total supplies 11 years	3,672	461	335	4,468	17.8	2,452	2,815	644	5,911	58.3

1916.

SOURCE.	Deep Wells.					Shallow Wells.				
	Good.	Bad.	Doubtful.	Total.	Per Cent. Unsatisfactory.	Good.	Bad.	Doubtful.	Total.	Per Cent. Unsatisfactory.
Private supplies.....	353	75	14	442	20.4	263	426	17	706	61.3
Public supplies.....	124	11	0	135	8.1	52	14	0	66	21.2
Total.....	477	86	14	577	17.7	315	440	17	772	59.2



TABLE SHOWING SOURCE AND NUMBER OF WATER SUPPLIES ANALYZED.  
1906-1916.

SOURCE	1906	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Total.
Deep Wells.....	207	221	288	269	341	293	334	592	656	690	577	4,468
Shallow Wells.....	380	257	419	478	381	573	616	764	702	569	772	5,911
Cisterns.....	27	18	27	21	32	40	31	59	48	37	76	416
Springs.....	26	23	47	51	31	60	30	66	84	84	56	587
Streams.....	18	67	33	38	19	28	66	94	96	47	50	556
Lakes and Ponds.....	8	18	36	19	17	21	42	22	27	23	18	251
Miscellaneous.....	18	15	68	46	.....	38	16	14	32	70	60	377
Totals.....	684	619	918	922	821	1,053	1,164	1,611	1,645	1,520	1,609	12,556

## REPORT OF SANITARY SURVEYS AND INVESTIGATIONS OF PUBLIC WATER SUPPLIES.

JOHN C. DIGGS.

During the year ending September 30th a total of 39 investigations were made by the Water and Sewage Department. Seventeen of this number were made in answer to petitions of health officials and officials of water works plants who either doubted the quality of their public water supply, desired advice in regard to the operation or improvement of a water works purification plant, or wished investigations of a condition which they believed a possible menace to the public health of the community. Many of these investigations were completed with the inspection of the water plants and in some cases the collection of one or more series of samples which were examined in the laboratories located at Indianapolis. Two investigations, however, the sanitary survey of the summer resort located at Lake Wawasee and the study of the watershed of the chain of lakes which furnish the supply of water for Valparaiso, included the establishment of a chemical and bacteriological laboratory in the field in which samples were examined immediately after collected thus eliminating the difficulties resulting from the shipping of samples long distances.

Twenty-two investigations of public water supplies were initiated by the department in the belief that the state should exercise more rigid supervision over water purification plants. Many of these investigations disclosed improper operation of plants and in many cases criminal negligence on the part of the plant operator. A few plants were found in a very sorry state of repair, necessitating for proper operation a complete overhauling of the entire purification machinery.

Information derived from the various visits of the department to the water purification plants emphasized the importance of

state control and resulted in the working out and putting into operation a plan whereby the department might be able to keep a closer "tab" on the plant management.

The Indiana State Board of Health has no organized engineering department such as exists in many of our more progressive states. All work of this character has been performed by the Water and Sewage Department in addition to the original work, the examination of water and sewage samples for which the department was created. It is to be hoped that a department which will not only have complete control of the operation of all water and sewage plants, but shall also examine and approve of plans for such plants before they are permitted to be constructed shall be created by the state legislature.

**ADVICE TO THE CITY OF LOGANSFORT IN REFERENCE  
TO THE CONDITION OF THE PUBLIC WATER  
SUPPLY AND THE OPERATION OF THE  
FILTER PLANT.**

**J. C. DIGGS.**

At the request of the Secretary of the Board of Health of the City of Logansport on November 2, 1915, an investigation was conducted to determine two questions, i.e: (1) Is the chemical treatment given the Logansport public supply responsible for cases of rash or skin eruption among children and (2) Is the filtration plant operated properly to produce the most economical results? The second question refers to the sanitary condition of the water furnished, the taste and odor of the water supplied the city and the amount of chemicals necessary to produce a satisfactory water with the present plant.

Investigations and interviews made on November 3, 4 and 5, disclosed that a case of rash on a child 18 months developed soon after the filtration plant was put in operation. The child, apparently healthy otherwise, was bathed in the city water. During the past summer the child was taken from the city for a period of three months and the rash disappeared. Upon the return to Logansport city water was again used and the rash reappeared. Soon afterward rain water was used in bathing with the result that the patient became free from the eruption. The physician attending the case laid the cause of the trouble to the chemicals used in purifying the public water supply.

Upon inquiry among other physicians of the city no other case of rash was found, the cause of which was attributed to the public water supply. However many persons alleged that the use of the water did produce a chafing of the skin.

An investigation at the filtration plant showed that during the summer of 1915 the coagulant, aluminum sulphate added to the raw water varied from .5 to 9 grains per gallon, the larger amount being necessary during periods of very high turbidity of the raw water. Although frequent tests were made, free alum was never found in the water at any time and even should it have been present, it would have been in such small quantities that it could not have caused rash. In addition to the aluminum sulphate, calcium hypochlorite was used at the rates of 10 pounds to 30 pounds per million gallons. In feeding this "hypo" about two-thirds of the dosage was added to the coagulated water as it flowed to the filters and the remainder fed into the suction line as the water left the clear water well. Very probably all of the chemical added above the filters was absorbed before it reached the city mains, but since the water is pumped directly to the consumers there were probably times when undecomposed "hypo" was present in the water as the result of the second feeding of the chemical. At any rate the water almost constantly had the taste and odor resultant from an excessive chemical feeding.

The use of "hypo" in water purification is now a general practice throughout the United States. As far as investigation of literature was able to disclose, no ill effects have resulted from its use in proper dosages. The Public Health Service Report issued by the U. S. Public Health Service under date of October 9, 1914, recommended the use of disinfecting agents in the purification of water supplies. In speaking of "hypo" this report says, "The proper application to a water of the requisite quantities of this disinfectant will bring about a practically complete removal of pathogenic organisms without affecting the water to any noticeable extent. The disinfectant later undergoes a chemical change whereby it is converted into a perfectly harmless substance normally present in most natural waters."

In view of the above evidence it does not seem probable that the chemical treatment given to the water at the city of Logansport can result in any harm to persons using it either internally or externally. The water of Eel River is comparatively hard for a surface water, and may, as in the case of hard water, cause a slight irritation of a delicate skin. For that reason the use of such a water may not be advisable in certain cases.

## PLANT OPERATION.

From the aspect of the production of a sanitary water supply, records as far as they go, show that the operation of the Logansport filtration plant has been successful. The records kept at the laboratory are, however, by no means complete. Daily bacterial tests should be made on samples of water taken during the various stages of purification. This includes the raw water, coagulated and settled water, water from each filter in operation and tap water. Only by such tests can the efficiency of each unit of the plant be determined. During the month of October, 1915, tests were made on only seventeen days and some of these included tests of the tap water only.

In addition to the above bacterial tests, physical and chemical should be made daily to determine the amount of aluminum sulphate necessary to produce the proper coagulation for most efficient operation. Experiments should be made to determine the most economical amount of chemical for different turbidities. The amount of aluminum sulphate used in the Logansport plant has been exceedingly large. A part of the time it was unnecessarily large because of the failure to clean the coagulating basin at the proper time.

At certain times the feeding of "hypo" has been unnecessarily great. It is recommended that the "hypo" feed into the clear well section be used only at times when the filter effluents are not satisfactory for drinking purposes. An overdose of "hypo" causes objectionable tastes in the city water. Such tastes should be avoided. The amount of chemical should always be sufficient to produce a satisfactory water, but such chemical disinfecting should not be used to the extent of neglecting any detail in the process of coagulation or filtration.

The City of Logansport uses an excessive amount of water. The average per capita consumption approaches 300 gallons daily. This is far in excess of what is actually used, fully two-thirds of this amount being wasted. The cost of operation of the Logansport plant as far as pumping and chemical treatment is concerned will be proportionate to the amount of water used. A concerted effort should be made to cut down the great wastage by consumers.

A recommendation was made in an earlier report from this office that the city of Logansport should procure the services of an experienced filtration engineer, one who is thoroughly familiar

with the theory and operation of a filtration plant. Such a move will be a very profitable investment for the city. When it is considered that a change of from 4 to 3 grains per gallon alum feed means a financial saving of nine dollars per day for the city, the above statement may be understood.

The employment of such an expert for only a year or two, until a local man can be trained, is highly advisable. Such a man will, by reason of his past experience understand the troubles of operating a plant under difficult conditions.

The attitude of the public toward filtration in towns where a plant has just been installed is often one of skepticism. This feeling is sometimes augmented through derogatory statements made by doctors of the "old school" and others who know nothing of the process but whose utterances carry weight because of their scientific attainment. The best way to overcome this tendency is to keep the plant at all times open to and in a presentable condition for visitors, and to induce as many townspeople as possible to come and see it.

#### AN INVESTIGATION OF NUISANCE CAUSED BY SEPTIC TANK EFFLUENT AT GREENCASTLE, INDIANA.

JOHN C. DIGGS.

At the request of Dr. J. M. King, an investigation was made to determine the facts and to advise a remedy in regard to the alleged nuisance caused by the effluent from the septic tank which is a part of the sanitary sewage system of Greencastle, Indiana.

During the last year, the city of Greencastle has constructed a new sanitary sewer system totaling nine and one-half miles of lines. These lines are so laid that approximately 65 percent of the city is accommodated. At the present time, however, not more than 10 percent of the houses are attached. The system includes two septic tanks, each of which has a working capacity of approximately 75,000 gallons. At present, only one is in use.

At the time of the visit to the sewage disposal plant on November 8, 1915, the single tank in use was not working at its full capacity. As a result the bacterial action was allowed to proceed too far resulting in the effluent giving off an offensive odor. This effluent empties into a small branch, through which it flows 3,000 feet to Big Walnut Creek. Some distance below the

point where the sewage waste empties, the water and the bed of the branch are colored black by fermenting organic matter. At a distance 2,000 feet from the septic tank the stream has regained its normal appearance.

The condition of the septic tank effluent is at present far worse than it will be after the volume of sewage increases so that the plant may work at its designed rate. But it is highly probable that the branch will continue to be polluted as long as the septic tank alone is used for purification. For this reason it seems advisable that additional purification apparatus be constructed. This should consist of a line of tile leading down the valley of the branch toward Big Walnut Creek and additional purification apparatus such as "sprinkling" filters, "contact" beds or "intermittent" sand filters. The material for the construction of any of these devices can be obtained reasonably cheap at Greencastle. Sprinkling filters or contact beds will require less ground space, but both require more attention and care in operation. Intermittent sand filters can be operated with much less care and in all probability will bring about far greater purification.

## THE PRINCETON WATER FILTRATION PLANT.

JOHN C. DIGGS, Sanitary Engineer.

On November 9, 1915, an inspection was made of the newly installed rapid sand filtration plant of the Princeton Water Company, Princeton, Indiana.

The public water supply for the town of Princeton is taken from the Patoka River a comparatively clean stream of water whose chief pollution is that received from the drainage of the agricultural lands on its watershed. On account of the steep slopes of its narrow valley, it is a stream which carried on unusually high turbidity during portions of the year. For this reason filtration is especially necessary for the production of a water supply satisfactory for domestic use.

The water is drawn from a suction well located on the bank of the stream and pumped by a low lift centrifugal pump into a sedimentation basin of approximately 1,000,000 gallons capacity. This basin is baffled so as to bring about entire use of the basin. The lower portion of the basin is baffled to be used as a coagulating basin. This portion is seventy-feet long by twenty-five feet wide by eleven feet deep.

Alum is used as a coagulant. Provisions are made for the

addition of lime or soda to the raw water as it goes to the sedimentation basin and as it flows into the coagulation basin.

From the coagulation basin the water flows through a raw water channel which supplies four gravity filters, only three of which are now equipped for service. Each of the filter units has a sand area of three hundred and thirty six square feet and is rated at 750,000 gallons per day. The filtering medium consists of thirty inches of Cape May sand supported by gravel graduated in size. The strainer system comprises cast iron manifolds with two inch galvanized pipes as laterals into which the brass strainer heads are screened. Wash water pressure is obtained from a 40,000 gallon stand pipe located adjacent to the filter plant. Air wash is also provided.

The filtered water is collected in an uncovered, reinforced, concrete reservoir of 1,000,000 gallon capacity. The water is pumped to a standpipe by a 2,000,000 gallon Laidlow-Dunn-Gordon pump which maintains a discharge pressure of 125 pounds and a city pressure of 60 pounds. A "booster" pump located near the city permits a pressure of 130 pounds for use in case of fire.

A laboratory is being installed to assist in keeping the plant working at high efficiency. Examinations made on samples taken from the plant indicate that the plant is producing a satisfactory removal of both bacteria and sediment.

It is highly advisable that a test lasting over a period of a couple of weeks be made upon this plant. Such a test will determine proper rate and time for washing filters, proper dosage of chemicals and assist in determining at what loss of head the plant can be operated economically.

## A PROPOSED SANITARY SEWERAGE SYSTEM FOR THE TOWN OF FORT BRANCH, INDIANA.

JOHN C. DIGGS, Sanitary Engineer.

In response to the following request, a preliminary survey was made of the Town of Fort Branch to determine if the construction of a sanitary sewer system would be a feasible installation.

Fort Branch, Ind., Oct. 21, 1915.

"The Town of Fort Branch desires to install a sanitary sewerage system at an early date. Therefore, we, the Board of Trustees of Fort Branch unanimously request the services of the State Sanitary Engineer, believing this to be our best step toward a perfect system.

By order of the Board of Trustees of the town of Fort Branch, Gibson County, Indiana. C. F. HOFFMAN, Clerk-Treasurer."

The town of Fort Branch drains directly into a branch known as the Muddy Fork of Pigeon Creek. This creek may be used as the outlet or outlets in case more than one trunk sewer needs to be constructed.

The entire south and central part of the town, except a small area north of Strain Street and west of the railroad may drain into a branch leading directly to this stream. The portion west of the railroad, north of Strain Street and the remainder of the town north of Vine Street drains north to the branch flowing past the water plant.

The simplest sewerage would carry the waste in these directions. This, however, would call for two or more outlets, a plan which probably would not be most economical in the end.

On account of the low water condition which exists in Pigeon Creek during the dry summer months, it will be necessary that the sewage be purified before being discharged into the stream. Since this is the case every effort should be made to bring the entire volume of the waste to one central point providing it can be done without an extremely deep cut being made through the ridge, which lies along Strain Street and the railroad.

Carefully estimated costs cannot be made until grade lines and other data have been determined.

The next step toward an establishment of a sewerage system is obtaining the services of a competent sanitary engineer who by previous experience will prevent the town spending money for poor work.

Provision should be made for sewage purification. At the present time a septic tank or "Imhoff" tank will probably bring about a satisfactory degree of purification. Such construction, however, should be so made that other purification devices may be added.

#### THE DRAINAGE OF THE TOWN OF WOLCOTT, INDIANA.

The town of Wolcott, located in the western part of White county, lies in a section of Indiana prairie land which, by reason of its flat surface, is afforded very poor natural drainage. The town lies in a slight depression of the plains through which passes the surface water run off of a tract whose area is roughly estimated at from two to three thousand acres. By the deepening of the channel of a small branch known as Monon Creek, the land lying east of Wolcott has been drained to a fairly satisfactory



degree. This dredge ditch formerly received the surface water from Wolcott and the area west through an open ditch passing through the town. Some five years ago, through the joint investigation of the railroad company along whose right-of-way the open ditch flowed and several farmers through whose land it passed, by the consent of the Town Board of Wolcott, the open ditch was closed up and a thirty inch drain of tile substituted for at least a portion of the way to carry off the water. Emptying into this tile drain from the section above Wolcott was a twelve inch tile drain.

Following the closing of this open ditch, the town of Wolcott was visited by several severe floods. During the past year the section of the town lying south of the railroad has been under water four times. At the time of these floods, the water stood in some of the streets to the height of three to four feet, not only causing great financial property loss, but producing a very unsanitary condition by reason of scattering the filth from the numerous privies to the surrounding lots and sidewalks. Such conditions most certainly will lead to the spread of disease.

These floods are probably the result of two factors which by proper correction may be eliminated. First, the 30 inch tile drain is entirely inadequate to remove the water which runs off the drainage basin lying to the west of the town and second, the level of the water in the dredge ditch lying two miles east of the town is so high that the necessary fall of the drain for proper drainage is not afforded.

A drainage ditch intended to remove surface and ground water from land should be of such size that it will carry away water to the depth of three-fourths inches of all surface drained per twenty-four hours. At Wolcott where the tile ditch is laid at a grade of approximately .1 per cent or 5.3 feet per mile, a thirty inch tile would properly care for but 400 acres of land. On the basis that the area from which the flood water is to be removed from approximately 3,000 acres the drainage capacity should be at least seven times as great as it now is. This capacity may be increased by the construction of other, or large tile drains or by means of an open ditch. An open ditch built at a grade of .1 per cent. or 5.3 feet per mile to adequately drain 3,000 acres, should be capable of carrying a stream of water 5.5 feet deep and 7 feet average width.

In addition to the trouble from insufficient size of the drains, information showed that at times of flood in the dredge ditch,

the water "backed up" in the tile drain cutting down the fall. If these facts are true, steps may have to be taken which will bring about a lowering of this water level. This may be done by cleaning out and enlarging the dredge ditch.

No steps should be taken until the town has determined through a reliable drainage engineer the exact facts as to the area of the drainage basin above and including the town, the fall from the town to the water level of the dredge ditch during flood season and the advisability of cleaning and enlarging the dredge ditch. After the collection of these data, plans for an adequate system of drainage which will take care of the flood water of the town and surrounding farm lands may be worked out.

#### THE ICE SUPPLY OF MICHIGAN CITY, INDIANA.

The ice supplied to the citizens of Michigan City is from two sources. One of these supplies is the artificial ice manufactured from distilled water and furnished by the plant of the Dunlap Artificial Ice Company.

Bacteriological examinations of samples from this supply showed an average bacterial count on agar agar at 37° C of 2 per cc. A test for B. Coli and other gas forming organisms showed none were present in 10 cc quantities.

The second supply of ice is furnished by the Phillips Ice Company. This supply is a natural ice cut from the "Basin" of Lake Michigan. By the "Basin" of Lake Michigan is meant the body of water enclosed by the breakwater. This body is shut off from the remainder of the lake by the breakwaters except for a short gap leading out of the harbor. This arrangement permits the harbor water which receives the sewage of Michigan City to enter the basin. The analysis of a sample of water collected from the basin disclosed the fact that this was very grossly polluted by sewage and was entirely unfit for drinking and domestic use.

During the investigation several samples of ice sold by the Phillips Ice Company were examined bacteriologically. These examinations as shown by the accompanying tabulation showed that the ice cut from the "basin" was badly contaminated and entirely unfit for human consumption or any place where it might come in contact with food products.

Contaminated ice supplies, and in fact all ice cut from water which is polluted by sewage is one of the carriers of typhoid

fever and kindred diseases. Such an ice obviously should not be used at soda fountains where it may come in contact with the products served, nor should it be used in ice boxes of grocery stores or restaurants where it may touch food products.

BACTERIOLOGICAL EXAMINATIONS OF ICE SUPPLIES OF MICHIGAN CITY, INDIANA.

Bacterial Number	Collected from	Ice Supplied by	Bacteria per cc.	B. Coli.
485	Rudolph Krueger, Vienna Cafe.....	Phillips Ice Co. ....	27	None.
486	Chas. Frank, 210 Franklin St.....	Phillips Ice Co. ....	33	Present.
487	.....	Dunlap Art. Ice Co....	2	None.
488	Faroh Bros.....	Phillips Ice Co.....	13	None.
489	Frank Seib.....	Phillips Ice Co.....	15	Present.
490	Henry Finske.....	Phillips Ice Co.....	21	None.
491	Annex Saloon.....	Phillips Ice Co.....	950	Present.

These examinations show that the artificial ice is a safe supply and that the natural ice cut from the "basin" is badly contaminated and very dangerous to the health of the city. If used in connection with any grocery, ice cream parlor or saloon it, undoubtedly, will at times come in contact with the products sold at these establishments and endanger the health of persons who buy from them.

INSTALLATION OF WATER LABORATORY AT  
AURORA, INDIANA.

The Indiana Public Service Company at Aurora, Indiana, has recently installed a control laboratory to be used in keeping the filter plant in operation at high efficiency. This laboratory was put in operation on April 10, 1916, and instruction given the employees of the Company which would enable them to carry on the proper bacteriological tests of the water.

A full description of the Aurora plant is found in the 1914 report of the Indiana State Board of Health. The inspection made April 10 and 11 indicates that certain changes must be made before operation of the plant can be entirely satisfactory.

The filtration plant at Aurora is comprised of two 500,000 gallon tub filters which are supplied with settled water from two settling tanks which have a combined capacity of 60,000 gallons.

The settling capacity of this tank is entirely inadequate. The small size of the settling basin not only greatly increases the amount of chemical used, but imposes an additional burden on the filters which demand more frequent washings and loss of wash water.

The apparatus used in applying iron sulphate is crude and inaccurate. By the equipment used much chemical is wasted at times and at other times the amount of coagulant is insufficient. Solution tanks should be installed that will permit the feeding of a definite amount of chemical at all times. The condition of the lime feed is the same as in the application of the iron sulphate.

No loss-of-head gages or rate control regulators are in use on the filters. An entirely satisfactory effluent can not be produced until these are installed.

APRIL 14, 1916.

Mr. Robert Engle, Sup't.,  
Washington Water, Light and Power Co.,  
Washington, Indiana.

Dear Sir:—

My report of the inspection of the public water system of Washington is as follows:

"The many chemical and bacterial examinations show that the filtered water supplied to the public at Washington has in the past year been very satisfactory practically all the time. Occasionally, however, as shown by the analyses of the last ten days, the city supply of water contains B. Coli and other gas forming organisms.

An inspection of the water purification plant was made April 12th to determine the cause of the failure of the plant to remove at all times the objectionable organisms.

In construction, in the whole, the plant is very satisfactory. Two features however, should be mentioned. The method applying the treatment of hypochlorite is very crude, inaccurate and the rate of treatment easily altered. A better arrangement would consist of applying the chemical solution into the discharge of the filters instead of to the settled water from the sedimentation basin. This plan not only permits a more efficient treatment of the water, but will allow proper sterilization with the use of a decreased amount of the chemical.

The apparatus required to bring about this change can be installed at a relative small cost. The equipment will be comprised of a mixing tank and a solution tank. These tanks should be installed in the present chemical tanks room in order that the hypochlorite solution may be fed into the filter discharge by gravity.

As a matter of plant efficiency loss of head gages should be placed in each filter.

Such an installation will permit a great saving of wash water used and will at the same time serve as an index in determining whether a single filter is operating in normal manner.

The recent construction in the sedimentation basin is excellent and brings about not only a better settlement of the raw water with a decreased amount of alum, and permits the filters to be operated for a longer period between washings.

Very truly yours,

JOHN C. DIGGS,  
Water Chemist.

INSPECTION OF BOWERY CREEK, NEW CASTLE,  
INDIANA.

Bowery Creek, a small branch of Blue River, flows through the center of the city of New Castle passing within two blocks of the city square. This stream normally receives the surface drainage of the land within the corporation limits. Its flow is greatly increased during the rainy seasons by the several, storm water and sanitary sewers recently constructed. During such periods the water of the stream rises and, upon receding, leaves a coating of the city's filth spread upon the banks and adjoining lowlands.

Not only is Bowery Brook and its stream-bed a foul smelling and unsightly eye-sore to the city, a breeding place for filth and malaria, but a general nuisance and menace to the public health of the city.

The banks of the stream serve as a resting place for tin cans and a general catch-all for rubbish, garbage and other city wastes. With the additional construction and extension of sewers now under way the branch will receive additional loads of domestic sewage and street washings. These extensions and enlargements of sewers have been necessary because the engineers who laid out the sewerage of the city fifteen years ago did not anticipate the unusual growth which it has undergone during the last few years.

It is obvious that sanitary construction in New Castle has not kept pace with the cities growth and other civic improvements.

The plan of the City Engineer calls for the construction of a large intercepting sewer at its upper end thirty six inches in diameter and at its outfall seventy two inches. This will care for all surface water normally forming in the Bowery Brook and, in addition, remove the sanitary sewage and storm water emptied into the stream by the sewers recently constructed. The plan of the engineer is entirely feasible and if carried out will remove one of the most unsanitary and unsightly conditions found in any up to date Indiana city.

J. C. Digggs,  
Sanitary Engineer.

## INVESTIGATION OF PUBLIC SPRINGS, WINONA LAKE, INDIANA.

At the request of the Town Board of Winona, an investigation of three public springs located in the Assembly Park, was made on June 1st, 1916. These springs, the Grotto, Studebaker and McIntyre have been closed to public use since November, 1914, as a result of a sanitary survey of the territory lying above the springs.

The three springs, as shown by an earlier report of this department, are located on the side of a bluff along whose upper edge passes a sanitary sewer line. The sewer line is small in size, and doubtless flows its full capacity during seasons when the Assembly is at its height. The danger of a leakage of the sewer into the water-bearing stratum is great. This alone is sufficient to condemn the springs as a drinking water supply.

Additional sources of pollution are from the several residences located on the hill side through which the springs receive this supply of water.

The advantages of a supply of cool spring water are great and many persons are attracted to a region which is fortunate enough to have such a feature, but such an advantage is more than counter-balanced if there is a likelihood that such a supply may be contaminated by sewage. A questionable spring should never be used.

JOHN C. DIGGS,  
Sanitary Engineer.

June 8th, 1916.

Dr. J. N. Hurty, Sec'y.,  
Indiana State Board of Health,  
Indianapolis, Indiana.

Dear Sir:—

I have investigated the nuisance at Greencastle as set forth in the enclosed report.

I recommended that an order from the Secretary be sent to Hon. J. W. Cooper, Mayor, Greencastle, Indiana, and Dr. King, Health Officer, directing them to take legal steps to remedy the nuisance caused by the discharge of domestic sewage and household wastes into the box stone culvert in the city of Greencastle.

Very truly yours,

J. C. DIGGS,  
Sanitary Engineer.

## INVESTIGATION OF THE NUISANCE CAUSED BY THE BOX STONE CULVERT, GREENCASTLE, INDIANA.

Upon receipt of a petition from several residents of Greencastle, Indiana, the Indiana State Board of Health ordered an investigation of an alleged nuisance caused by the discharge of sanitary sewage and other household waste into an old box stone drain which passes through a residence district of the city. This investigation was made on June 7th by J. C. Diggs, Sanitary Engineer of the Indiana State Board of Health.

This box stone drain was constructed many years ago and was originally intended to remove the surface water which naturally flowed through the ravine running from the old Episcopal Church to North Water Street. In recent years sanitary sewage and other household wastes have been made to discharge into it.

As a result of this practice the filth which collects in the drain putrefies and gives off a very offensive odor, not only making it very disagreeable to pass by a street inlet emptying into the drain, but greatly depreciating the value of property in that section of the city on account of the unsanitary surroundings.

Greencastle has an excellent ordinance requiring connections with the city sanitary sewer system. A rigid enforcement of this ordinance will remove the entire nuisance and restore to the residents of this section of the city an atmosphere unpolluted by the odor of sewage and other filth.

A careful survey should be made to determine the offenders and corrections should be ordered. If these corrections are not made within a reasonable time (30 days) the city should immediately bring about prosecution. Such legal procedure may be taken under the recently exacted ordinance of the city of Greencastle or under the health law of the State of Indiana.

## INVESTIGATION OF THE PUBLIC WATER SUPPLY HEBRON, INDIANA.

J. C. Diggs.

At the request of the Town Board of Trustees and Health Officer, an inspection of the public water system of the town of Hebron was made on July 25, 1916.

The source of water for the supply is a driven well 1,086 feet deep. The log of this well shows that after passing through 75 feet of clay and sand, a water-bearing and gas-bearing rock formation was struck. The water was highly mineralized and

not of sufficient quantity for a public supply. After passing through 100 feet of sand, clay and shale formation rock formation was again entered. At this depth the casing was supposedly sealed into the rock formation and the drilling continued to a depth of about 1,090 feet where a flow of water, bearing large quantities of lime salt and sulphuretted hydrogen gas was obtained. This water, although it occurs in quantities for a public supply, is extremely hard and so highly mineralized with salt and dissolved gases that it is entirely unfit for a public supply. In addition to the mineral content, all samples submitted to the State Board of Health for analysis, including samples collected by the writer, showed the presence of B. Coli. Since it is unreasonable to assume that the bacterial contamination comes from a depth of 1,100 feet, undoubtedly there is seepage of ground water into the well through either a cracked casing or at the point where the casing joins the lower rock formation.

After the completion of the well a horizontal pressure filter was installed under the guarantee that by treating the deep well water with a coagulant and passing it through the filter, a satisfactory water could be obtained. The production of a satisfactory supply from water of the character of the deep well at Hebron is impossible by the use of any device or treatment applicable on the large scale. Money spent on any such plan is wasted.

The single stroke pump used at Hebron plant is not suitable for applying pressure to the city mains, especially when pressure filters are a part of the construction.

The pressure tank at the plant is quite satisfactory for a small supply and the oil engine is satisfactory until electric power can be obtained. An automatic electrically driven pump is the most economical for a plant such as Hebron has.

Steps should be immediately taken to determine the availability of any other source of supply. Should a satisfactory well supply be obtained, the present filter is an unnecessary part of the plant equipment. Should it seem most practicable to use a surface supply, the filter with the installation of a coagulating tank may be available for purification of the supply.

#### SUMMARY.

The supply of water obtained from the deep well and passed through the pressure filter is highly mineralized and entirely unfit for a domestic supply.



The presence of B. Coli in the water indicates surface water is reaching the well. Unless this can be cased off or the harmful bacteria removed by the filter, the supply should be discontinued at once as a protection to public health.

## INVESTIGATION OF THE PUBLIC WATER SUPPLY ELWOOD, INDIANA.

J. C. DIGGS.

At the request of Dr. J. F. Ginn, Secretary of the Elwood City Board of Health, an inspection of the public water system of that city was made on August 1, 1916.

The source of water supply is eleven 5 inch wells varying in depth from 130 to 170 feet. Under ordinary conditions the water is lifted directly from these wells by the pumps which supply the pressure to the city mains. At times when the rate of water consumption is extremely high, during time of fire and hot dry weather, the wells do not supply sufficient water to maintain the proper city pressure. To eliminate this shortage of water, which occurs during the daylight hours in the summer, water is drawn from a concrete reservoir. This reservoir is supplied with water from the wells of the company, the pumping being carried on during the hours when the city consumption is slight, i.e. from 11 P. M. to 4 A. M. By this arrangement, a sufficient supply for all emergencies is maintained at all times.

The reservoir used for the storage is of concrete, approximately 119 feet long by 87 feet across at its greatest width. It is 12 feet deep at its center and has a capacity of approximately 1.5 million gallons. The reservoir is emptied once each month when the walls and sides are thoroughly cleaned.

The very serious objection which exists in regard to the public water system is due to the fact that the reservoir is uncovered, and located nearby a railroad line and the public streets. The exposed surface of the water permits contamination by dust, dirt, and soot. As a precaution against the contamination of the city supply, a cover which will exclude all pollution from the air, must be constructed.

By the gradual lowering of the ground water level, it will become necessary in the near future to raise all of the well supply to the reservoir, by air lift before it can be carried to the pumps which supply the city pressure. When this condition occurs, unless the supply is covered, the danger of pollution will be increased.

To construct a satisfactory covering for the reservoir, posts resting on the floor of the basin must support the roof. The installation of this work is not possible while the reservoir is in use. For this reason it seems advisable that this improvement in the plant be not undertaken until about October 1st, after which date the city pressure may be maintained by the pumps working direct from the wells to the city mains.

The quality of the water supplied by the wells of Elwood is very satisfactory and the Elwood Water Company cannot permit the city's supply to be exposed to the dangers of contamination through the air. Considering the fact that construction cannot be commenced at once, 90 days is a fair time limit for the completion of this work.

August 4, 1916.

Dr. J. N. Hurty, Sec'y.,  
Indiana State Board of Health,  
Indianapolis, Indiana.

Dear Sir:—

I attach to this letter a copy of my report made in answer to the petition from citizens of Shelbyville setting forth a complaint regarding the quality of the public water supply.

The petition reads as follows:

Shelbyville, Ind., July 22, 1916.

"To Secretary, State Board of Health,  
Indianapolis, Indiana.

We, the undersigned citizens of Shelbyville, Indiana, do hereby submit the following petition, requesting the State Board of Health to take charge of the deplorable conditions of the water supply to the city, by the Interstate Public Service Company.

We know the State Board of Health has the power in the control of the water supply of the city, and it should enforce the health laws upon the Interstate Public Service Company for contaminating the city supply of water and compel them to furnish in a reasonable time, an adequate supply of pure water for all purposes.

We demand the immediate removal of the intake pipe line, which carries the raw, river, laden germ water into the city water mains, as a number of sewer lines, running from the Children's Home, Schmaes Factory, the Meley sewage lines, the Dinkey Factory and the Sidlinger Slaughterhouse, all empty their refuse material directly into the river above this intake pipe.

*This is a Health consideration not a property consideration.*

There has been already too much delay in efforts of bringing the Interstate Public Service Company to terms and we ask for an immediate solution of the water problem and for a correction of the water supply system for the sake of the health, welfare and comfort of the people of Shelbyville.

We take this measure by which we hope to secure *justice*."

Very truly yours,

JOHN C. DIGGS,  
Sanitary Engineer.

## INVESTIGATION OF THE PUBLIC WATER SUPPLY OF SHELBYVILLE, INDIANA.

J. C. DIGGS.

The City of Shelbyville, whose present population is approximately 14,000, had its public water system constructed in 1885. The plant, now operated by the Interstate Public Service Company supplies water through 17.5 miles of mains with an average daily pumpage of 1,100,000 gallons.

The sources of supply are one brick walled curb well 25x36 feet and six 6-inch drilled wells ranging from 38 to 40 feet in depth. The water is lifted from the six drilled wells into the curb well which also serves as the suction well for the plant.

In addition to the above supply, the company has for six and one-half years maintained a suction line to Blue River. This line supplies water to the boilers of the plant and is used in the steam condensers of the various engines used for pumping and electric generation. It also serves as an emergency intake for the public water system for the city supply should the well water supply become inadequate.

Blue River is seriously polluted by domestic sewage and factory wastes above the point of the intake, making the use of water from this source without purification an extreme menace to the public health of the city.

On account of the heavy pumpage, the water level in the wells operated by the company has been lowered several feet. While the supply is sufficient for ordinary usage, the reserve which the plant may use in case of emergency is inadequate to maintain the proper unit of safety. In a city the size of Shelbyville there should be provided a supply for use in case of fire equal to 2.5 times the average daily consumption. The wells of the Company will not produce water at this rate.

On June 29, 1916, a fire occurred in the city of Shelbyville which placed an unusual burden on the public water system. As a result, the water in the suction well became lowered to such an extent that to maintain proper pressure on the mains, the engineer opened the valve which permitted the water from Blue River to be pumped into the city mains. Pumpage from the river continued for about one and one half hours.

During the several days following June 29th, the fire hydrants of the city were flushed in an effort to remove the river water and restore the public supply to its normal condition. The

rapid flow of the water in the mains by the flushing caused a high turbidity of the supply in certain parts of the city. Samples examined in the laboratory of the State Board of Health showed that by July 5th the city supply had practically regained its normal condition. The investigation made in answer to the petition was made on August 2nd, 1916. Samples collected by the engineer on that date showed the water to be of a satisfactory character. The bacteria averaged 5 per cc. No gas formers were found on four 10 cc portions.

The practice of a public water system having two sources of supply, one of which is satisfactory, the other contaminated, is very dangerous. The danger of this practice is augmented when a condition exists whereby a potable supply is barely able to care for the regular demand for water and where an unusual condition may result in the use of the polluted supply.

The supply from which the Interstate Public Service Company of Shelbyville may draw is sadly inadequate for a city of 14,000 population. No time should be lost by the corporation under contract to supply good, wholesome water to the city at all times, to see to it that such a supply is made available.

Considering the disaster which may result from pumping polluted water into city mains, it seems proper that should an emergency arise which might seem to demand additional water at any cost, the health authorities should decide the questions as to the propriety of the use of an infected water supply, i e. permission should be obtained from the local health authorities and the public properly warned before such a supply is used.

In view of the conditions as they exist at Shelbyville, it is recommended that the following orders be issued to the Interstate Public Service Company of that city.

1. That the suction line supplying Blue River water to the city pressure pumps be broken either by the removal of the connection suction pipe, or the connecting valve shall be closed and sealed by the City Board of Health and the seal broken only on the order of the Secretary of the Shelbyville Board of Health.
2. The Interstate Public Service Company shall take steps to provide additional and adequate supply of potable water for the City of Shelbyville, Indiana.

## INVESTIGATION OF THE PUBLIC WATER SUPPLY OF SHERIDAN, INDIANA.

JOHN C. DIGGS.

At the petition of the Town Board, an inspection was made of the public water supply of Sheridan, Indiana. The petition of the local board of trustees set forth that many complaints had arisen on account of the bad taste, discoloration and high temperature of the town supply.

The public water supply of Sheridan is furnished by a private corporation which operates the plant in conjunction with electric and ice plants. The water is derived from three wells. One is a dug well 28 feet deep by 10 feet in diameter. This well serves also as a suction well for the pump intakes. Water is also obtained from an 8 inch driven well, 173 feet deep. This well is pumped by means of an air lift directly into the suction well. The air lift is operated at the rate of 100 gallons per minute for five hours each day.

The third well is 232 feet deep and is pumped by means of a steam pump at the rate of 75 gallons per minute. Water from this pump goes to the boiler feed tank and to cylinders which are used in cooling the ammonia gas from the ice plant operated in connection with the water and light plant. The water after being used to cool the ammonia pipes flows into the suction well which supplies the town.

A fourth well 12 inches in diameter and 43 feet deep has been constructed but is not yet in use.

The public water supply of Sheridan is a fairly hard water and rather high in iron content. When the water is permitted to stand for some time in the mains, the iron settles out causing a discoloration. During time of excessive warm weather the water becomes warm and acquires a slight taste and odor. It is believed however, that this objection can be entirely removed by more frequent flushing of the fire hydrants. The warming of the water by coming in contact with the ammonia pipes is very slight for only a small portion of the city's supply is thus treated. Such use of the city water supply is in no way unsanitary and cannot possibly be the cause of an illness.

Water is supplied to 185 consumers, 52 fire hydrants are in use. Five miles of mains are laid.

## MICHIGAN CITY.

JULY 10, 1916.

The public water supply for Michigan City is taken from Lake Michigan through an intake extending about one mile into the lake. The water supply is subjected to contamination from the city's own sewers and the general pollution of the lake. During the periods of high wind the supply is turbid.

In 1912 a "hypochlorite" treatment plant for sterilization of the city supply was installed. This plant was continued in use until 1916 when it was replaced by a chlorine gas machine. By means of this treatment the bacterial count and sewage organism are kept at a minimum. Qualitative tests for gas forming organisms are made with plantings of 5 to 10 cc portions two or three times each week.

During the month of June 1916, the water works officials permitted their supply of chlorine gas to become exhausted resulting in no treatment of the city supply for a period of ten days. No warning was given to either the local board of health or to the public that the city was being supplied with polluted water supply. The officials cannot be too strongly criticized for such a practice. It is extremely hazardous to trifle with the health of the citizens in such a fashion after they have been led to believe that the public supply was satisfactory for drinking purposes.

It is recommended that the City Board of Health arrange to make more frequent, thorough examinations of the water supplied to the public.

If Michigan City expects to keep pace with other Indiana cities, it will be necessary that the public officials take steps to improve the public supply. This can be brought about only by the construction of long intake pipes or the installation of a modern filter plant. No time should be lost in obtaining the services of a competent engineer who will plan future extensions and improvements of the city's public water system.

## GARY.

JULY 11, 1916.

The intake of the Gary Water Company—a private corporation, extends into Lake Michigan 7,500 feet and draws its supply at a distance of 20 feet from the surface in 40 foot water. Water drawn from this portion of the lake is clear at practically all times

and far less subject to pollution than the supply of most cities taking their supplies from the lake. Liquid chlorine treatment which was installed during 1915 adequately sterilizes the city supply.

The public supply is examined two times each week in the municipal laboratory. The supply is normally satisfactory. It is recommended that more frequent tests be made of a supply which through the presence of an unusual pollution at the intake or the failure of the sterilization apparatus to work properly, may become the cause of infected water reaching the citizens.

#### EAST CHICAGO.

The East Chicago water system originally installed in 1894 is comprised of a pumping plant drawing water through a 36 inch intake extending 300 feet into Lake Michigan, a chemical treatment plant and a distribution system of 38 miles of mains.

The pumping machinery consists of one 3,000,000 gallon Laidlow-Dunn-Gordon, one 6,000,000 gallon Allis Chalmers, and two 5,000,000 gallon DeLaval centrifugal pumps.

In 1915 a chlorine gas sterilization plant was installed for treatment of the water which is infected with the sewage of the cities bordering the lake. Such treatment is not satisfactory in producing a potable supply at all times. The water company is at the present time preparing to build a gravity filter plant which will assure a potable supply for the city at all times.

#### HAMMOND.

JULY 13, 1916.

The public water supply of Hammond is municipally owned and operated. The intake which extends one and one-fourth miles into Lake Michigan draws water from a section subjected to pollution during certain periods of the year. No sterilization or other purification is provided for treating the public water supply. Within a few years it will be necessary for Hammond to follow the example of other cities which do not have a pure water supply available for public use. A filtration and chemical treatment plant must be installed. Immediate steps should be taken toward safeguarding the health of the city by the installation of a liquid chlorine treatment plant.

The city of Hammond is provided with a public health laboratory in which bacterial examinations of the city may be made. By the findings of the laboratory, the operation of the chemical treatment may be regulated.

#### WHITING.

JULY 14, 1916.

The public water system of Whiting was built by the Standard Oil Company about 25 years ago. The supply is drawn through an intake extending but a short distance into the lake and subjected to pollution much the same as the supplies of other cities bordering the lake. The lake water is treated with "hypo" but this treatment does not produce a potable supply at all times.

A movement is on foot at the present time to secure a purification plant, preferably a gravity filter plant for the city. It is to be hoped that the plans may be perfected which will result in the construction of such a plant in the near future.

#### BLOOMINGTON.

AUGUST 5, 1916.

The public water supply of Bloomington is obtained by impounding the surface water falling upon several of the slopes near the city. Experiences during past years have shown that the Mitchell limestone which underlies the surface clay stratum is very soluble. Considerable trouble has been experienced during these years by the failure of the beds of the reservoirs to hold the collected water. On account of the loss of impounded water, the city has on several occasions experienced a water famine during the dry summer months. The surface water in addition to being lacking in quantity has frequently been contaminated to such an extent that it was not satisfactory for drinking purposes until purified by sterilization treatment with hypochlorite.

In 1914, in an attempt to obtain an additional supply of water, a dam was constructed across a small stream which is fed by several springs. This storage reservoir, which is known as Leonard Springs, has a storage capacity of approximately 350,000,000 gallons or practically a year's supply for the city at the present rate of consumption.



A very serious objection to this storage reservoir is the fact that it is located at a point five miles from the city and one and one-half miles from the present pumping station.

A new pumping station is being constructed at the foot of the Leonard Spring dam. The city hopes to be able to pump from this station directly into the city mains. To supply pressure to the city from this station, the water must be pumped through a twelve inch line over several hills and to an elevation considerably higher than that of the plant. This will require an exceedingly high pressure at the pump discharge, one in fact which may be impractical for ordinary use. In such event, it may be necessary to resort to a booster station between the pumping plant and the city.

It is believed from point of sanitation the use of water from one central reservoir is preferable to the collection of the run-off from several water sheds. The storage period will be longer and the likelihood of chance pollution will be decidedly less.

It will be necessary to provide sterilization of the impounded water supply. It is believed that the installation of a chlorine gas sterilization outfit will eliminate much of the irregular treatment which often results when "hypo" is used for sterilization.

The machinery now in use at the pumping plant is comprised of one Laidlow-Dunn-Gordon, crank and flywheel type of 3,000,000 gallons, one Laidlow-Dunn-Gordon direct acting of 2,000,000 gallons, one Smith Vaile of 1,000,000 gallons.

The new pumping plant which is to be located at the Leonard Springs reservoir is to be equipped with a Laidlow-Dunn-Gordon of 1.8 million gallons capacity.

The public water system supplies 1,800 consumers taps. The average daily pumpage is approximately one million gallons per day.

#### INDIANA UNIVERSITY.

AUGUST 5, 1916.

In 1911 Indiana University, located in the city of Bloomington, obtained a supply of water separate from the city public supply by the construction of a concrete dam across a gully about three and one-half miles east of the city. Previous to this date the University had depended on the public system of the city but was seriously handicapped by the inadequate supply.

Since the original installation and construction, the University plant has been enlarged and improved by (1) increasing the

capacity of the reservoir and (2) by the installation of pressure filters.

The system as now operated consists of a storage reservoir which, by means of a 40 foot concrete dam, impounds a supply of 40,000,000 gallons. The dam is set in the Knobstone formation, which, after five years experience has shown no tendency to develop leaks such as have been experienced in the reservoirs of the city system which were underlain with a bed rock of Mitchell limestone. The watershed of the reservoir, an area of some 300 acres is entirely controlled by the University which has exercised proper precaution to see that it is kept in a sanitary condition. From time to time the water of the reservoir has been treated with copper sulphate to remove alga growths forming therein.

The water is drawn from the reservoir by two triple Deming pumps and passed through pressure filters to a concrete reservoir of 120,000 gallons capacity located near the University campus. The filters are two 8 foot Kennicott filters. Alum is used as a coagulant.

The water consumption varies from 75 to 90 thousand gallons per day, but is rapidly increasing. To care for future increase, plans are being made for the installation of two additional filters.

Frequent bacterial tests are made by one of the departments of the University.

## BEDFORD.

AUGUST 5, 1916.

The public water supply for Bedford is taken from the East Fork of White River. The water before being supplied to the city is subjected to purification by sedimentation with alum and sterilization with hypo.

An electrically driven DeLavel centrifugal pump of 2,000 gallons per minute capacity lifts the water from the stream and carries it to the sedimentation basin. The basin is circular in form and baffled to bring about complete displacement. The capacity of the basin is approximately 3,000,000 gallons affording a settling period after coagulation with lime and iron of two days.

The water is drawn from this basin by two centrifugal pumps, one of 1,100, the other 550 gallons per minute capacity. Direct pressure is applied to the city mains. Hypo at the rate of 13 pounds per million gallons is added at the pump suction.

The public system supplies water from 1,300 services and 150 hydrants. Eighteen miles of city mains are laid and the daily consumption is approximately 1,500,000 gallons.

#### PAOLI.

AUGUST 8, 1916.

The town of Paoli is supplied with water taken from Lick Creek. The supply is purified by a pressure filter system installed in the spring of 1915.

The purification plant is comprised of an 8x20 foot steel coagulating tank and three 8 foot pressure filters. Alum is used as a coagulant. The plant produces a satisfactory effluent, but is compelled to operate at a very low rate when Lick Creek is excessively turbid.

The town of Paoli has two very large consumers, the Monon Railroad which takes about 40,000 gallons per day and a local canning factory which uses 75 to 90 thousand gallons per day when operating. Other consumers use approximately 130,000 gallons.

At the time of the inspection of the plant no alum was being fed into the raw water, it being believed that since Lick Creek was clean no alum would be required. Such a practice is wrong. Alum should be used at all times to remove bacteria as well as turbidity. It is recommended that more satisfactory operation of the plant may be obtained, if a longer period for settling the raw water permitted. The construction of an outside settling and coagulating basin would be of great value to the plant.

#### WEST BADEN.

AUGUST 7, 1916.

The town of West Baden is supplied with water from Lost River. The water after filtration is pumped to a half million gallon reservoir at the top of the hills near the village.

The pumping plant consists of one electric pump of 400 gallons capacity per minute. In the same building are housed two 10x12 horizontal pressure filters. The plant capacity is 500,000 gallons per day. The summer pumpage is about 225,000 gallons per day.

No settling or coagulating tank is provided. Such a tank or basin will greatly add to the efficiency of the plant. Since it

is contemplated that this plant be enlarged so as to care for the town of French Lick which does not at this time have a potable supply, it is recommended that the additional construction shall include a settling and coagulating tank which will relieve the strain on the filters during periods when the raw water supply is excessively turbid.

Hypochlorite is used for sterilizing.

#### WEST BADEN SPRINGS HOTEL.

AUGUST 7, 1916.

The supply of water used in the West Baden Springs Hotel is obtained from Lost River, pumped to a reservoir on a nearby hill and passed through pressure filters to the distribution system below. The old stream driven pumps which have been operated a number of years are to be replaced by an electric driven pump of modern type. The old earthen reservoir is to be supplanted by a circular concrete basin of half a million gallons capacity. The new reservoir will serve both as a settling and coagulating basin with the completion of the new construction. With these changes in construction, the plant should produce a supply of good water.

#### ORLEANS.

AUGUST 8, 1916.

A public water supply for the town of Orleans was installed in the summer of 1916.

The source of supply is two 8-inch wells, 113 feet and 115 feet respectively. The supply of water is soft and very satisfactory for domestic as well as industrial uses.

Two Cook constant pressure deep well pumps, electrically driven, are used to elevate the water to a 60,000 gallon pressure tank. In case of fire an electric driven booster pump of sufficient size to produce a pressure of 110 pounds may be used. The first two pumps are automatically controlled, the booster pump being controlled from the electric light plant located in Orleans three quarters of a mile from the pumping station. Each pump and motor is very securely housed in a neat, double walled, concrete block and wood, frost proof building.

## FRENCH LICK.

AUGUST 9, 1916.

The public water system which furnishes a supply for the town of French Lick is owned and operated by the French Lick Springs Company, a private company, which has a contract to furnish water for fire protection and sprinkling purposes only. The supply is taken from French Lick Creek, which is fed by springs and the run-off from the surrounding hills. A dam has been built across this creek so as to form a small storage reservoir from which the water is passed by gravity into two brick cisterns. From these cisterns the water is lifted by an electrically driven Gould pump which is operated at the rate of 12,500 gallons per hour. The water is carried to the top of a hill on which a brick and concrete storage reservoir has been constructed. From the reservoir it flows by gravity into the city mains. During the time of highly muddy water, alum is added to the water as it goes to the reservoir. This throws down a considerable part of the turbidity and produces during the greater part of the year a fairly clear water.

As French Lick Creek is located in a valley surrounded by steep hills, it receives all the drainage from pasture lands and barn yards in this section. The purification treatment now employed is entirely unsatisfactory as a means of producing a potable water supply and the city supply at present cannot be considered safe as a drinking water.

The need of a more satisfactory public supply is all the more imperative in French Lick because of the very unfavorable geological conditions which make difficult the obtaining of a dependable underground water supply.

A surface water such as French Lick Creek supplies, is not satisfactory for drinking purposes, but by the installation of a small filter plant, such as already has been constructed at West Baden and Paoli, a good water may be obtained.

In so far, however, as the West Baden public water system is joined to the mains of the French Lick system, it undoubtedly is true that if the two systems were merged, one filter plant could supply water to the two towns far more economically than could be done by two separate plants. It is highly advisable that the citizens of French Lick take active steps to secure a potable water supply.

## JASPER.

AUGUST 10, 1916.

The public water system of the town of Jasper was built by the city in the year 1896. The supply was taken from the Patoka River, pumped to a reservoir from which it flowed by gravity into the distribution system.

At the time of the inspection, August 10, 1916, a filtration system was being installed. The plant after completion will be comprised of a pumping plant, two horizontal pressure filters, a storage reservoir and a distribution system.

The pumping plant consists of a horizontal motor driven pump, turbine type, capable of producing a pressure of 90 pounds and a discharge of 350 per minute. The raw water to which is added alum as a coagulant is pumped directly to the lower portion of the pressure filters which serve as coagulating basins. The filters are 8x22 feet with a combined capacity of 600,000 gallons per 24 hours. A feature of the filters is that indicator devices are installed which show rate of filtration for individual filters and rate at which wash water is applied.

The distribution reservoir, built of concrete, has a capacity of 1.3 million gallons.

For distribution, 6.4 miles of mains are provided 10 inches to 4 inches in size. 58 fire hydrants are in use. About 450 consumers taps are in use.

## PRINCETON.

AUGUST 10, 1916.

The public water supply for the town of Princeton is taken from the Patoka River, a comparatively clean stream of water whose chief pollution is that received from the drainage of the agricultural lands on its water shed. On account of the steep slopes of its narrow valley, it is a stream which carries on unusually high turbidity during portions of the year. For this reason filtration is especially necessary for the production of a water supply satisfactory for domestic use.

The water is drawn from a suction well located on the bank of the stream and pumped by a low lift centrifugal pump into a sedimentation basin of approximately 1,000,000 gallons capacity. This basin is baffled so as to bring about entire displacement. The lower portion of the basin is baffled to be used as a coagula-

tion basin. This portion is seventy-five feet long and twenty-five feet wide by eleven feet deep with a capacity of 240,000 gallons.

Alum is used as a coagulant. Provisions are made for the addition of lime or soda to the raw water as it goes to the sedimentation basin and as it flows into the coagulation basin.

From the coagulation basin the water flows through a raw water channel which supplies four gravity filters, only three of which are now equipped for service. Each of the filter units has a sand area of two hundred and sixty-one square feet and is rated at 750,000 gallons per day. The filtering medium consists of thirty inches of Cape May sand supported by gravel graduated in size. The strainer system comprises cast iron manifolds with two inch galvanized pipe as laterals into which the brass strainer heads are screwed.

Wash water pressure is obtained from a 40,000 gallon standpipe located adjacent to the filter plant. Air wash is also provided. The filter basins are of rather unusual depth, being twelve feet deep and, as a general rule the water level in the filters is about seven feet above the top of the sand layer. This arrangement permits of a continuation of the filtering process for several hours if it should be necessary to stop the river pump.

The filtered water is collected in an uncovered, reinforced, concrete reservoir of 1,000,000 gallons capacity. The water is pumped to a standpipe by a 2,000,000 gallon Laidlow-Dunn-Gordon pump which maintains a discharge of 125 pounds and a city pressure of 60 pounds. A "booster" pump located near the city permits a pressure of 130 pounds for use in case of fire.

#### MT. VERNON.

AUGUST 14, 1916.

The city of Mt. Vernon obtains its water supply from the Ohio River. The supply is purified by means of a gravity filter plant installed in 1903. The filters are four in number, each with a capacity of 500,000 gallons per 24 hours. A sedimentation tank with a capacity of 100,000 gallons is provided for removing heavier solids and permitting coagulation by means of alum. A "hypo" chemical treatment plant was installed in 1916. Weekly bacterial tests are made in a control laboratory located in the plant.

The water is supplied through 12 miles of city mains to 1,200 consumers. The average daily consumption is 650,000 gallons.

## EVANSVILLE.

AUGUST 15, 1916.

Evansville built its first public water supply in 1872. In 1912 the system was equipped with a modern filtration plant. The system is now comprised of the pumping station and filtration plant, and 116 miles of mains which supply water to 12,000 consumers.

The Evansville filtration plant consists of three coagulating basins with a normal rating of five hours sedimentation, twelve filters of 1,000,000 gallons capacity each, a clear well with a storage of 1,000,000 gallons capacity, machinery pit, chemical storage room, canal forebays, etc.

The coagulating basins have a total capacity of 2,500,000 gallons, two of which are 1,000,000 gallons each and the third 500,000 gallons. These basins can be operated in either series of parallel, although the former has been found most satisfactory. They vary from those generally constructed in other plants in their extreme depth, which measures 28 feet over all. Since the water is being treated without preliminary sedimentation, a good opportunity has been afforded to determine their efficiency, and the results have been uniformly satisfactory.

The filters are twelve in number and have a filtering area of 388 square feet, with a normal rating of 1,000,000 gallons per each twenty-four hours. The filter beds consist of thirty inches of sand, taken from the Ohio river, which was screened and graded so as to secure an effective size of 0.26 millimeter, and a uniformly co-efficient of 1.83. The gravel, which is of 10-inch depth, ranges in sizes from one-sixteenth of an inch to one inch, and was graded and placed in four layers.

Air is used in washing and is admitted to the beds through 3-8 inch slotted brass tubes placed between the sand and gravel. Each filter is equipped with controller, operating stand and loss of head gauges and the water passes through the controller directly into the clear well, from which it is pumped to the city.

The chemicals used for coagulants are sugar sulphate of iron and hydrated lime, with bleaching powder applied for sterilization.

The pumps which supply water to the filter plant are located in the well of the pumping station. They are of the centrifugal type, steam turbine driven, being manufactured by the DeLaval Company.



A chemical and bacterial laboratory is maintained in connection with the water plant. By means of this laboratory a very careful control is kept of all plants operations.

During the last year, a campaign has been on foot which resulted in the installation of a large number of meters by the consumers. This installation resulted in a considerable decrease in the water consumption.

### BOONVILLE.

AUGUST 15, 1916.

The water supply of the city of Boonville is obtained from two artificial lakes, one referred to as the old reservoir built in 1896, the other known as the new lake built in 1912. The old lake covers about 24 acres and varies in depth from 6 to 13 feet. The supply of water is obtained from a water shed of limited area. The water shed consists entirely of farm lands and several sets of farm buildings are in use upon it. The new lake covers about 28 acres. Its water shed is limited and like the old is all tilled farm land on which are several sets of farm buildings.

A 10 inch line runs from the old lake to the pumping station from which it is pumped to a standpipe. The new lake delivers water into the old lake as it may be needed through a 6 inch line. The average daily pumpage is about 160,000 gallons. Seven hundred and eighty-three service pipes supply 80 per cent of the dwellings in the city.

In July 1915, the supply became very distasteful on account of the accumulated growth of algae and other plant forms in the lake. Recommendations were made that a temporary suction line be constructed to take water from near the surface of the lake instead of from bottom. This change was made resulting in an immediate improvement in the city supply. Other changes recommended at that time, viz. (1) the construction of a pipe line whereby water could be drawn directly from the upper lake. (2) emptying and cleaning the old reservoir, (3) improvement of the water shed of the lakes, were not carried out.

At the time of the inspection, August 15, 1916, the character of the city supply was very satisfactory. The dam of lower reservoir was in a very bad state of repairs. The oak-faced, clay dam is in fact seriously endangered during periods when the lake is high and the wind is blowing strong. Repairs should be made at once and it is recommended that a reinforced concrete facing

will probably be the most economical means of protecting the clay walls from the wave action of the water.

To properly protect the water supply not only should the recommendations previously made be carried out, but plans should be set on foot which will lead toward the construction of a filter plant in the near future. No matter how carefully a surface water supply is protected, times will occur when pollution will gain entrance. A filter plant constructed to guard against this condition is an economical health insurance for any city.

### OAKLAND CITY.

AUGUST 16, 1916.

The water supply of the town of Oakland City is taken from an artificial lake which, when full to the spillway, has a capacity of approximately 73,000,000 gallons. The lake has a mud bottom and occasionally the water develops an unpleasant odor due to the heavy growths of moss, pond lilies and algal forms. At the time of the inspection, August 16, 1916, the water was especially objectionable on account of a very marked taste due probably to growths of some of the lower plant forms. The water works officials were advised that the surface of the lake would probably remove the objectionable taste. The growths of moss may be lessened by treating with copper sulphate. The inspection of the plant also indicated that greater care should be used in applying a more regular treatment of the "hypo" to the lake water.

### WASHINGTON.

AUGUST 17, 1916.

The Washington Water Company, a private corporation supplies water for the public system of Washington, Indiana. The company obtains their supply from the West Fork of White River. The raw river water is settled in coagulating basins and filtered through gravity filters of the Norwood type. Distribution is obtained through approximately 20 miles of mains. The company supplies about 7,000 of the population of the city. In addition to supplying the city, water to the amount of 250,000 gallons daily is provided for the Baltimore and Ohio Railroad shops located west of the city.

Although the filter plant was enlarged in 1915, the rapid increase in consumption places a considerable burden on the plant

during certain periods of the day. For this reason it is advisable that the fourth  $\frac{1}{2}$  million gallon unit of the plant be equipped before the beginning of another summer season.

For more efficient operation of the plant, it is recommended that certain changes and additions be made, to-wit:

(1) Loss of head gauges and efficient rate control valves should be installed.

(2) A more satisfactory distribution trough for coagulated water in filter No. 3 should be provided.

(3) A more satisfactory sterilization of the filtered water should be procured. This may be done by the installation of a liquid chlorine sterilization machine.

(4) The fourth filter unit should be equipped.

### VINCENNES.

The public water system of Vincennes was established by the Vincennes Water Company in 1886. The raw river water was pumped into a standpipe by two Dean vertical, compound, condensing pumps of two million gallons capacity each. It flowed into the city mains by pressure.

Filtration was first established in 1898 by the installation of four Continental Jewell filters with a total capacity of two million gallons, and six wooden settling tanks of 50,000 gallons capacity each. These filters were replaced in 1906 by six concrete filters of 800,000 gallons capacity each.

During the year of 1914 improvements were made in the plant, a large concrete sedimentation basin, three additional filters, an additional clear well and chemical mixing and storage tanks were constructed. Additional pumping machinery was also installed. As it is now operated, the system is composed of two intakes extending into the Wabash River, two low service pumps for supplying raw water to the subsidence basin, sand filters, clear wells, high pressure pumps, a steam generating plant, a standpipe and a distribution system.

Two intakes into the Wabash River are provided, one of sixteen inches extending out into the river 235 feet from low water mark and the other, twenty inches in diameter, being 165 feet out at low water.

Originally the raw water was lifted to the sedimentation basins by two Wheeler compound, low service, condensing pumps of 3,000,000 gallons each. In 1914 there was installed a 6,000,000

gallon DeLaval turbine driven, centrifugal pump for the low lift work.

The newly constructed subsidence basin is a concrete structure 170 feet long by 70 feet wide by 10 feet deep with a baffle wall running length wise. The total capacity of the basin is 800,000 gallons, equivalent to 4.8 hours treatment on the basis of 4,000,000 gallons, the maximum daily consumption in Vincennes. By the aid of the concrete baffle wall, the length of the flow through the basin is approximately 340 feet. Consequently the maximum velocity is 1.1 feet per minute when the plant is working at the 4,000,000 gallon rate. A solution of alum is injected into the raw water as it enters the coagulating basin.

The filters are constructed of reinforced concrete and are nine in number, each 16 by 17 feet and with a capacity of about 800,000 gallons each. The strainer systems consist of one and one-half inch galvanized iron pipe leading from a control manifold. The strainer heads are made of brass and screwed into the pipe. All of the drainage system except the strainer heads is buried in the concrete floor of the filter. The filterial material consists of  $3\frac{1}{2}$  feet of sand laid on 8 inches of gravel. The wash water is removed by means of an upward current of air and water.

Two clear wells are provided, an old one 13 feet deep and 50 feet in diameter, having a capacity of 200,000 gallons and a new one of reinforced concrete holding 300,000 gallons.

Four high pressure pumps are provided. These consist of two Dean vertical, compound, condensing pumps of 2,000,000 gallons capacity, installed in 1886; one Worthington, horizontal tandem type expansion pump of 3,500,000 gallons capacity installed in 1906, and a new Snow cross-compound condensing pump of 6,000,000 gallons capacity.

Chemical mixing and storage tanks are provided. Alum is applied to the raw water as it goes to the settling basin and "hypo" applied to the filtered water as it goes to the clear well.

A standpipe 22 feet in diameter and 200 feet high carries the city pressure during a portion of the night.

The average daily consumption is approximately 2.5 million gallons. About 10,000 people depend upon the city supply for domestic use or sprinkling.

## TERRE HAUTE.

AUGUST 18, 1916.

The city of Terre Haute is supplied with filtered water obtained from the Wabash River as the source.

The raw water is pumped to a settling basin 230 feet long by 60 feet wide by 7 feet deep whenever it has a turbidity of 80 or higher. It is treated with alum and bleached. From the settling basin it is pumped into the pressure filters and directly into the city mains. The pressure filter system is comprised of 22 units. Twelve of these units were installed by the National Water Purifying Company. These filters are 10 feet in diameter and the shell is 7 feet in height. The total sand surface of the 12 filters is .0216 acres and the capacity at the rate of 150,000,000 per acre is 3,240,000 gallons in 24 hours. Ten horizontal filters each 8 by 20 feet with a total sand surface of .0321 acres have a capacity of 4,810,000 gallons per day.

The total filtering capacity of the plant is 8,050,000 gallons per 24 hours. During the last 5-year period 1911-1915, the average volume of water filtered daily was 4.81 million gallons. In comparing this figure with the plant capacity figure, 8.05 million gallons per day, it is seen that the plant has a very considerable reserve capacity over the daily output.

Previous to 1915, the Water Company used "hypo" treatment in addition to the purification by filtration. In that year a Jewell chlorine cell, which by electrolytic action generates chlorine gas from a salt solution, was installed. Since the original installation a cell of large capacity has been installed. By means of this installation, the company is able to treat the filtered water satisfactorily without causing the undesirable tastes which frequently accompany the use of hypochlorite.

The water company maintains a chemical and bacterial laboratory which very carefully checks the operation of the filter units. The figures compiled during the year indicate that a very satisfactory public supply has been furnished the city of Terre Haute. Typhoid fever statistics compiled by the Water Company indicate that while the average annual death rate per 100,000 from typhoid fever in the entire city for a 5 year period was 25.8, the rate for the same period among users of the public water supply was only 3.9 per 100,000.

The pumping machinery of the plant is as follows:

One Allis Chalmers Triple Vertical Engine. . . .	12,000,000
One Holly Double Compound Vertical Engine. . .	6,000,000
One Rotary Pump with Corliss Engine. . . . .	4,000,000
One Low Service Centrifugal Vertical Engine. .	6,000,000
One Clapp and Jones Vertical Engine. . . . .	4,000,000

The city is supplied by direct pressure. A storage reservoir is used for the peak of the load and in case of emergency. Approximately 100 miles of city mains are installed and 1,149 fire hydrants are maintained. About 7,300 consumers are supplied with city water.

#### INVESTIGATION OF SANITARY CONDITION OF WHITE RIVER BETWEEN BROADRIPPLE AND WAVERLY, INDIANA.

Pursuant to an order from the Indiana State Board of Health requiring a survey of White River to determine the effect of the discharge of domestic sewage and factory waste into this stream at Indianapolis. Such a survey was made September 8, 1916, by J. C. Diggs and H. E. Bishop.

The survey was made by traversing the course of the stream in a boat from Riverside Park, Indianapolis to Waverly Park, Indiana. Samples were taken at intervals and observations made at various points along the stream. In addition to the work done from the boat, two observations were made, at Broadripple and at the Bridge near Crows Nest.

The samples were taken at the points described below.

1. Broadripple above dam. At this point the river is free from floating matter or objectionable odor. The banks are clean.

2. Crows Nest. Water is clear, free from floating matter. Banks are clean. No objectionable odor.

3. Rivers de Park near Emricksville Bridge. The water is clean, but has a slightly weedy odor. Banks and surface clean.

4. Above West Washington Street Bridge Indianapolis. The water is clear. At places the surface is slightly oily. Banks are clean.

Below Kingan's Packing Plant. On the surface is a black scum. The banks and bed of the stream are soiled with slime.

Bubbles of gas rise from the septic water. Pieces of floating tissue are in the water.

Below Van Camps pieces of tomatoes are on the surface of the water.

5. Below Morris Street floating slime is on the water, the odor is foul. Banks are coated with slime. Bubbles of gas rise to the surface.

6. Belt Railroad, 500 feet below mouth of Morris Street sewer. Excessive amounts of floating matter. Banks coated with slime.

7. Raymond Street. Excessive floating matter with slime on banks and bed of stream.

8. Pleasant Run Outlet. River covered with a black scum. Banks coated with slime.

9. Bridge at Sellers Farm. Water black and covered with scum.

10. Three quarters of a mile below Sellers Farm. Oil and grease in scum on surface of the water. Bubbles of gas from water.

11. One half mile below Maywood Creek. Surface slightly clearing. Oil on surface, but little scum.

12. Three quarters of a mile below Eagle Creek. River broad, flat and quiet. Water clearing, slight scum. Bank coated with slime. Duck weed seen floating on surface.

13. One half mile below No. 12. River broad, flat, septic, Slime on banks and bed of stream.

14. One mile below No. 13. Odor and scum very noticeable. Water turbid and banks slimy.

15. One mile below No. 14. River septic. Scum on banks and bottom.

16. Covered Bridge. River Cleaner. Banks covered with slime and bottom covered with malodorous filth.

17. One mile below Covered Bridge. Surface clear. Slime on rocks and banks.

18. One mile above Johnson, Marion County line. Surface clear, slime on banks and rocks.

19. Johnson, Marion County line. Surface practically clear. Slime on rocks and banks, current swift. Bright green algae noted for the first time.

20. Two and one-half miles below Marion, Johnson County line. Water clear, Banks cleaner than formerly. Current swift.

21. Johnson, Morgan County line. Water clean. Banks and rocks less slimy.

22. Two miles below Johnson, Morgan County line. Water clean. Banks scarcely slimy. Floating filaments of algae.

23. Waverly Bridge. Water fairly clean. Little floating matter. Very little slime.

#### SUMMARY OF OBSERVATIONS.

Above the West Washington Street Bridge at Indianapolis, White River is practically normal. The surface was clean, save at a few points, some oil was floating. The water had no offensive odor. Fish were seen darting through the water or rising above the surface. Fishermen were on the banks.

From a point opposite Kingan's Packing Plant to the Marion County line the stream may be characterized as a malodorous, septic stream, bearing on its surface floating matter of sewage origin. The banks and rocks were covered with slime and filth. At certain points, viz. below the sewers of Kingan's Packing House, below Van Camps, at the mouths of the Morris Street and Harding Street sewers, the condition was infinitely worse. The stream was without normal plant growths of the lower forms and the trees along the banks were shunned by practically all types of birds which usually frequent streams.

In its course through Johnson County, the stream showed considerable improvement and in Morgan County as far as the eye was able to detect, the character of the water had returned to a normal condition. At these points however, it continues to give forth considerable odor and at some points a considerable deposit of filth was found on the bed of the stream.

From chemical analysis, it was found that samples taken from all points below the Washington Street Bridge were entirely devoid of dissolved oxygen making the existence of fish life impossible.

Bacteriologically the water below the city was of the same character as ordinary household sewage.



## WHITE RIVER SAMPLES, SEPTEMBER 8, 1916.

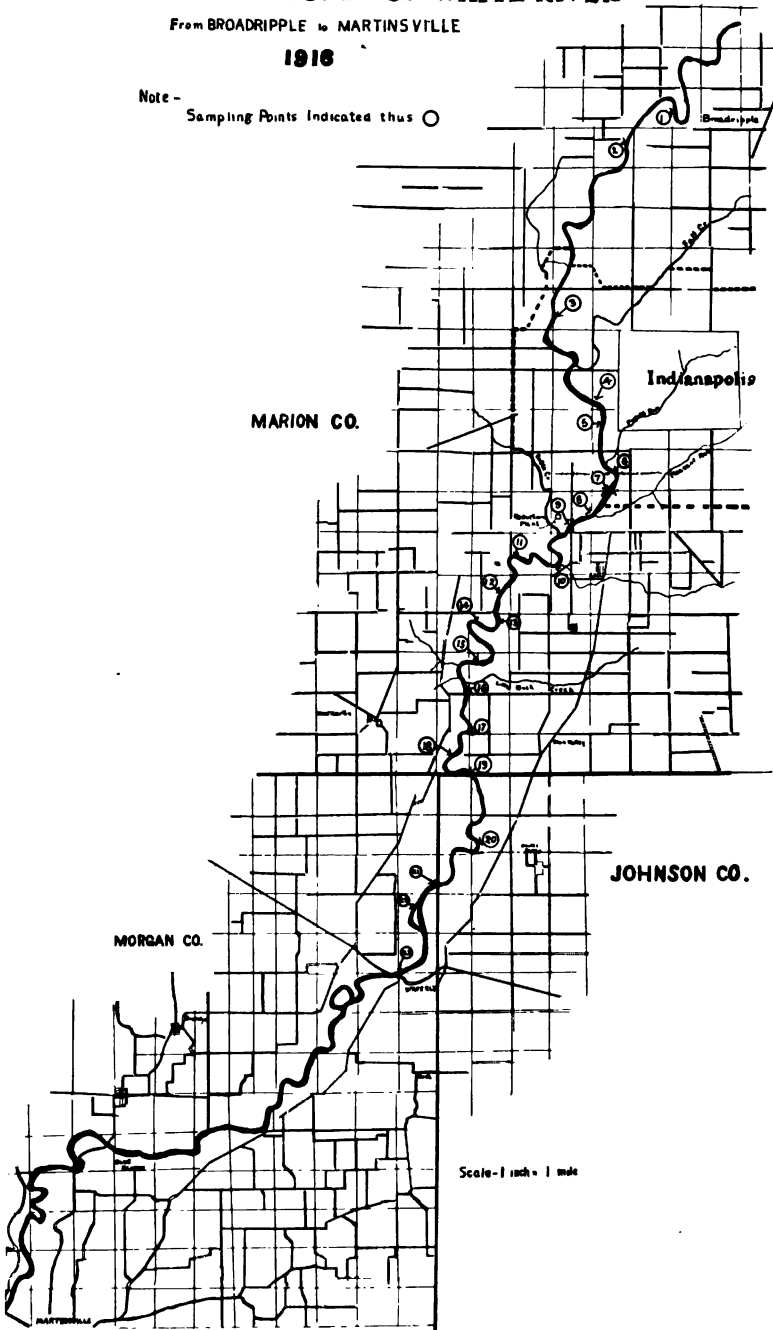
Lab. No.	Bac- teria per cc 37°	Am- monia.	Nitrogen as		Chlor- ine	Oxygen- Con- sumed.	Dis- solved Oxygen.	Percent. Satura- tion.
			NO <sub>2</sub>	NO <sub>3</sub>				
1	35	.0100	.0000	.0008	2.0	.482	.64	79
2	320	.0200	.0200	.0008	1.4	.284	.76	94
3	60	.0200	.0000	.0016	1.6	.460	.80	99
4	10,000	.0500	.0200	.0072	1.6	.442	.44	54
5	8,000	.0800	.0200	.0120	2.6	.476	.04	50
6	660,000	.3000	.0000	.0000	4.6	1.578	.00	0
7	400,000	.3000	.0000	.0000	4.4	.696	.00	0
8	700,000	.3000	.0000	.0000	4.4	.429	.00	0
9	900,000	.1000	.0000	.0000	4.6	.612	.00	0
10	800,000	.1000	.0000	.0000	4.8	.964	.00	0
11	250,000	.3000	.0000	.0000	4.4	2.114	.00	0
12	240,000	.3000	.0000	.0000	4.6	.960	.00	0
13	900,000	.4000	.0000	.0000	5.2	1.550	.00	0
14	400,000	.3000	.0000	.0000	5.4	1.285	.00	0
15	220,000	.4000	.0000	.0000	5.4	1.348	.00	0
16	120,000	.4000	.0000	.0000	5.2	1.352	.00	0
17	160,000	.5000	.0000	.0000	5.4	1.259	.00	0
18	160,000	.5000	.0000	.0000	5.0	1.436	.00	0
19	600,000	.5000	.0000	.0000	5.2	1.247	.00	0
20	198,000	.5000	.0000	.0000	4.4	1.218	.00	0
21	70,000	.3000	.0000	.0000	4.4	.847	.00	0
22	90,000	.3000	.0000	.0000	4.6	1.028	.00	0
23	125,000	.3000	.0000	.0000	5.0	.835	.00	0

**MAP SHOWING COURSE OF WHITE RIVER**

From BROADRIPPLE to MARTINSVILLE

**1916**

Note -  
Sampling Points Indicated thus ○



A SANITARY SURVEY OF LAKE WAWASEE

by

JOHN C. DIGGS, Sanitary Engineer.

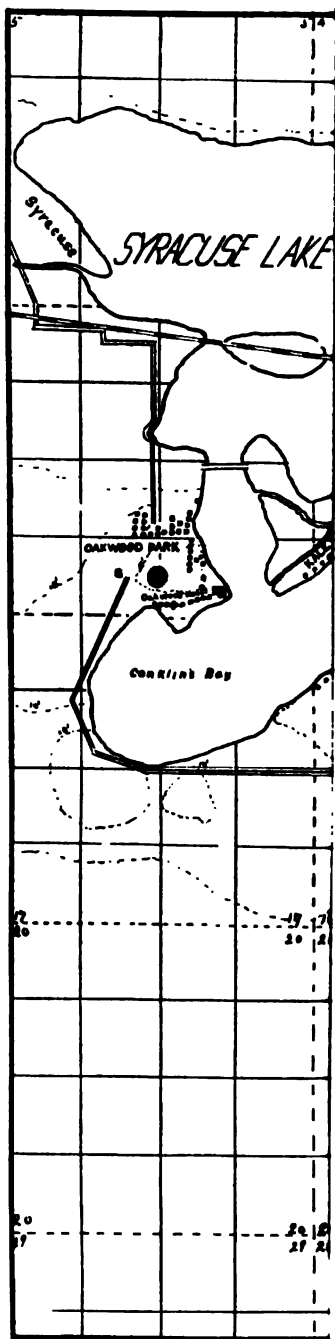
With a Discussion of

VACATION TYPHOID FEVER.

by

DR. H. H. MITCHELL.







## A SANITARY SURVEY OF LAKE WAWASEE.

JOHN C. DIGGS, Sanitary Engineer.

Lake Wawasee, situated in the northern portion of Kosciusko County, is the largest lake in the State. It is located on practically the summit of the continental divide; its waters passing into Lake Michigan which reaches the Atlantic through the St. Lawrence. Lakes located not five miles to the south drain into the Tippecanoe and Wabash Rivers and reach the Gulf of Mexico through the Mississippi. The lake, whose total area is 3,800 acres, is very irregular in shape, having a shore line of approximately 21 miles. The shores are equally divided between low marshy land and high bluffs with sandy shores. A large portion of the lake is shallow, more than one-half being less than 10 feet. At a few points the depth reaches 65 feet. The only tributary of any importance is Turkey Creek which enters the lake on the east side of Jarrett's Bay. During rainy seasons the overflow from Papakeechee Lake, an artificial body of water formed by the construction of a dam below a group of small lakes located at this point, reaches Lake Wawasee through a small branch.

A considerable part of the water supply of the lake is obtained from springs which feed in at the bottom. An idea of the hydrostatic pressure underneath the lake may be obtained by viewing the flowing wells at Buttermilk Point and Natty Crow Beach.

The water from the lake flows through a channel into Syracuse Lake and over a spillway into lower Turkey Creek through which it enters the Elkhart River near Goshen.

Wawasee Lake as well as many other Indiana lakes is underlain with deposits of marl. When the formation occurs in sufficient quantities in water of not too great a depth it is sought by cement manufacturers. On this account Conkling Bay has been dredged to obtain the marl deposits. At other portions of the lake where the shores are low and marshy, the vegetable growth are rapidly filling the lake.

Lake Wawasee, formerly known as Turkey Lake, is perhaps the oldest summer resort in the State. As long ago as 40 years, the lake was visited annually by fishermen from all parts of the state. At this time no cottages or hotels bordered the lake—the fisherman depending upon the farm house for lodging. As

for fishing, Wawasee has always stood high. Its waters abound in bass, pickeral, croppies, blue gills and perch.

As a summer resort, Lake Wawasee is perhaps the most highly developed of any in the State. Many large hotels, with all the improvements and conveniences of the city, are on its shores. Summer houses of finest quality have been built by citizens of the state who enjoy this location for a season's rest. It is an ideal spot for hiding from the sultry, invigorating atmospheres of our cities.

#### THE SURVEY.

The survey of Lake Wawasee was made at the request of the Wawasee Protective Association, an organization whose membership is made up of the several hotel and cottage owners and other persons who are interested in bringing about a betterment in conditions of all character at Lake Wawasee.

The survey at Wawasee devoted itself to three general lines of investigation. (1) A study of drinking water supplies, (2) a study of methods of sewage disposal and (3) a study of epidemics of typhoid fever or other diseases which have occurred at the lake during recent years and an investigation of the supposed causes of such epidemics.

The corps of men engaged in the investigation was made up of the Sanitary Engineer of the State Board of Health, the Epidemiologist of the same board and a chemist and bacteriologist. The work continued over a period of three weeks, beginning about May 15, 1916.

In carrying out the first two items of the survey, very careful sanitary inspections were made of each of the 275 cottages and hotels situated on the shores of the lake. It is unfortunate that the survey could not have been made later in the season for at such a time practically all cottages would have been occupied and all hotels caring for their full capacity of guests.

In the sanitary inspection notice was taken of the location of the source of water supply, in all cases, a well, in reference to the privy, cesspool, septic tank or other devices for the disposal of sewage, the character of the platform about the well and the drain which should remove any waste water from the immediate vicinity of the well. The inspection of sewage disposal devices noted not only the devices of such disposal but the danger of the filth eventually reaching the water of the lake as well as that of the drinking water supply of the occupants of the cottages or the hotels.



### THE UNDERGROUND SUPPLY ABOUT LAKE WAWASEE.

The geological formations which underlie Lake Wawasee and the surrounding land are very effective in affording to the region not only a very plentiful, but also a very pure water. The surface soil in nearly all cases is a sandy loam which is underlain at various depths with one or more strata of very impervious clay or hard pan. In some sections, in addition to this hard pan there is a layer of marl, a formation which very perfectly protects the strata underneath.

Wells for drinking water are obtained by driving pipes through the impervious layers until a gravel formation of good water-bearing quality is reached. The wells about the lake average from 16 to 30 feet in depth, though, in exceptional cases, the Wawasee Inn and the J. K. Lilly cottage on the north shore, where they go to a depth of several hundred feet. A well of a depth of less than 30 feet is considered very shallow. At such a depth it is very easy for any surface washings to find their way through any broken surfaces of the protecting soil formation eventually reaching the vein of water which supplies the well.

Many wells were found without curbs, platform or drain to carry away waste water falling near the well. Such a condition invites pollution of the water supply.

### SEWAGE DISPOSAL.

Various types of sewage disposal devices are found to be in use. Unfortunately, many of them had been constructed with an idea as to economy only. The old style privy vault or pit is a nuisance and must be replaced by a device which will not jeopardize the health of the occupants of the nearby cottages. The old style privy is a nuisance to the sense of smell and the sense of sight. It pollutes the soil, endangers the water supply and furnishes a breeding place for flies who carry the filth in the kitchen and dining room.

The cesspool is satisfactory for the house which has running water, providing it is located at a sufficient distance away from a water supply. The septic tank, if properly constructed, so as to care for the effluent by sub-irrigation, is a very good method of disposal.

Probably the best type of disposal device is the chemical closet. This device is free from all the objections of both the

out-door privy and the septic tank. It does not require running water for operation.

In the sanitary inspections which were made at every residence, the point of most vital concern was to determine the relation between the sewage and garbage wastes and the water supply.

Such matters as the disposal of dish waters and garbage and the general cleanliness of the back yard, directly or indirectly affect, not only the health of the family living in the home, but also that of the neighbors. Exclusive of the water supply, flies are probably the most active agents for transmitting typhoid fever and other intestinal diseases—especially summer complaint among children. A pile of garbage or manure, or a back yard made filthy by dish water and scraps from the kitchen, affords an excellent breeding place for flies which later carry filth and disease germs from privy to dining room or from the sick room to the baby's cradle.

An arbitrary classification of privies was made for the inspection—following the general method used by the U. S. Public Health Service in its typhoid investigations. The classification is as follows:

Class A. A privy with water-tight vault, thoroughly closed, and screened against flies.

Class B. Water-tight vault and closed, openings not screened.

Class C. Planked vault, closed rear but not water-tight.

Class D. No vault closed against chickens and small animals.

Class E. No vault, rear open, accessible to animals.

Obviously, it is difficult to classify some outhouses. It is often impossible to determine whether or not the vault had a water-tight bottom. As a matter of fact, most of the vaults were not water-tight, the owner depending upon the absorption by the soil to remove at least the liquid waste.

In some cases privies were found where vaults were overflowing, with the rear of the building entirely rotted away or broken through. Such an outhouse was placed in Class "E" for the obvious reason that it is as great a menace to public health as if constructed without a vault. (See table at end of report.)

#### HOTELS AT LAKE WAWASEE.

*The Wawasee Inn*, located on a high bluff on the north shore of Lake Wawasee, is the largest hotel on the lake. The hotel is very pleasantly situated in the middle of a grove of large trees.

Drinking water for the hotel is supplied from a 380 foot and a 280 foot well. The water for bath and toilets is supplied by the private water plant of the Hotel, through an intake extending some distance into the lake. The sewage of the hotel is adequately cared for by septic tanks whose effluents pass into cesspools.

*Vawter Park Hotel*, is situated at Vawter Park, a colony located on the high ground on the south shore of the lake. The drinking water supply for the hotel is obtained from two wells of approximately 40 feet in depth. Water for bathing and other household uses is obtained from this lake. Hotel sewage is disposed of by means of cesspools.

*Lake View Hotel*, is situated at a point formerly known as Black Stump Point. Drinking water is obtained from a driven well. No modern sewage system is in use.

*Oakwood Hotel*, located at Oakwood Park, is supplied with water by a private water system of the Park. The source of supply is a 30 foot driven well. The sewage of the hotel is cared for by a septic tank, the effluent passing into the marsh.

*Jones' Hotel*, is a hotel of 20 rooms. Water is obtained from two wells, one 35 feet and the other 53 feet in depth. At the time of the inspection, a septic tank for caring for sewage was being constructed.

*Sargent's Hotel*, with 12 guest rooms, is operated by Mr. and Mrs. J. M. Sargent. The hotel is thoroughly modern in every particular. The water is obtained from a 30 foot driven well. The sewage is very efficiently cared for by a modern septic tank, the effluent from this tank is disposed of by sub-irrigation.

*Brunjes' Hotel*, is located at the southwest end of the lake. Water is obtained from two 30 foot driven wells. No system for caring for the sewage in a sanitary manner was in use at the time of the inspection.

*Ditton's Hotel*, the water is obtained from driven wells. No modern type of sewage disposal was in use at the time of the inspection.

*Crows Nest*, located on a high bluff at the east end of the lake is a modern, commodious farm house operated as a hotel. The water supply is obtained from a spring. The supply is lifted to a tank located in the house by means of a hydraulic ram. Wastes from the house flow through a drain to the small sewage disposal plant.

## CONDITION OF THE WATER OF LAKE WAWASEE.

Lake Wawasee exists in practically a pure state. During the entire inspection no evidence was found which pointed to any real serious pollution. Naturally a lake in a settled agricultural section receives the washing from land which has been fertilized by barnyard manure. Lake Wawasee also receives the washings from the yards of the cottages. This is certain to amount to an appreciable pollution, no matter how careful the occupant of the cottage may have been regarding matters of sanitation. During the summer season a certain amount of filth is carried into the lake by bathers. Such pollution, although very minor and never likely to cause a nuisance, prohibits the use of the lake water, unless purified, as a source of drinking water supply.

Bacteriological examination of samples taken from various points in the lake showed that the quality of the water was very excellent as a surface water. The abundance of fish life in the lake further evidenced the purity of the water.

## GENERAL CONDITION OF WATER SUPPLIES AND SANITATION.

Chemical and bacteriological examinations were made of as many water supplies as it was possible to obtain samples. Most of these samples were satisfactory. Those showing evidence of pollution were ordered closed.

The most serious problem which confronts Lake Wawasee is that of sewage disposal. There is a tendency on the part of many of the owners of the cottages at this resort, as well as at all other similar resorts, to look up their abode at the lake as very temporary and not worthy of the expense of installing proper devices for disposal of the household wastes in a sanitary manner. Such an idea is a very serious mistake. Most persons go to the lake to rest and, perhaps to regain the health which they have lost by being too closely confined to the city. Sunshine and fresh air will do much to produce the desired result in the tired business man or under-exercised child, but it is not wise or reasonable to expect to build up a weakened human system under unfavorable conditions.

There are many privy vaults at Lake Wawasee which are a menace to a whole colony of cottages. They should be entirely done away with and substituted by a device which will prohibit the wastes from a convalescent typhoid patient being carried by flies or water to other individuals occupying nearby cottages.

Once the sewage problem is solved the matter of water supply will largely take care of itself. Certainly it is necessary to take common sense precautions; to see that dirty waste water is not permitted to fall on the ground near the well, and to see that garbage and dish water is not placed where it may come in contact with the water used for drinking purposes.

A well should be placed on ground that is a little higher than the surrounding surface and the waste water should be drained away.

### **VACATION TYPHOID FEVER AND LAKE WAWASEE.**

**DR. H. H. MITCHELL.**

The lack of sanitation at summer resorts, even under conditions where the need is as great as in our cities, makes vacation typhoid a serious and specific danger to the vacationist. Our city dwellers demand sanitation in the city, but the indifference with which these same persons regard conditions of potential danger at their vacation playground is one of the paradoxes of human nature. But an epidemic at a summer resort quickly gives rise to such a wave of fear that several years are necessary for business to recover. Such an epidemic, that demanded the attention of the State Board of Health, occurred at one of the resorts located at Lake Wawasee during the summer of 1915. This fear of Lake Wawasee was augmented by various newspaper reports in the surrounding cities.

The effect of such an epidemic upon a summer resort is so disastrous that good business cannot afford to take chances with unsanitary conditions that may invite typhoid fever. The sanitation at Lake Wawasee was no worse than at many other summer resorts in Indiana where they have been more fortunate. Where the conditions are possible for the ready spread of typhoid, the advent of the infection is all that is necessary for an epidemic.

The findings as shown in the report made to the State Board (1915 Annual Report) would indicate that a typhoid carrier rather than the sanitary aspect of the surroundings was responsible for the typhoid fever at Lake Wawasee in 1915. However, it is very probable that several unsanitary features about the Vawter Park Hotel at Lake Wawasee played a large part in the disastrous results of this epidemic.

The finding of a typhoid carrier makes a pretty poor argument

for improved sanitation. Carriers are recognized, before the danger is done, with such rareness and difficulty, that an epidemic of typhoid from a carrier handling food at the present status of our public health situation is regarded more as an unfortunate coincidence than inefficient public administration. Our laws in regard to the control of food handlers are adequate for the prevention of carriers but the problem of the complete administration of this law is not within the control of our officials at the present stage of public education and sentiment. But an epidemic of typhoid is signal enough for the correction of all conditions which allow typhoid to spread, for it is under the stress of a realization of the danger from the disease that the layman will make the greatest effort for good sanitation.

The presence at the Vawter Park Hotel of an open privy used by the kitchen help, an overflowing cesspool and the use of lake water for bathing, brushing the teeth by the guests, for washing dishes, rinsing drinking glasses and for washing the vegetables and salads made conditions at this hotel which invited the spread of typhoid aside from the usual methods by which a carrier in the kitchen and dining room may infect the food. The report of the survey made in 1916 shows many other conditions about the lake which would allow a ready spread of typhoid through a similar use of contaminated lake water, through flies from open privies and through pollution of wells from unsanitary disposal of sewage.

The facts that these conditions have not produced typhoid is a matter of good fortune and a mere coincidence that no infected person has appeared to supply the infection.

The recent history of typhoid at Lake Wawasee is confined entirely to an epidemic occurring in the summer of 1915 with the Vawter Park Hotel as the prominent and common factor in all persons having the disease following a visit at the lake. Fourteen cases of typhoid were reported who were at Vawter Park Hotel on or about July 25. Dr. Will Shimer, Superintendent of the State Laboratory investigated this epidemic during the latter part of August. His report appeared in the Tenth Annual Report of the Bacteriological Laboratory. A thorough inquiry from various sources around the lake was made with the purpose of learning of all possible history of typhoid about the lake or vicinity. No trace of any other cases of typhoid was found except those described by Dr. Shimer and four persons at the Vawter Park Hotel in the autumn of 1914, which included the proprietor and his wife. These cases probably came from a woman, Mrs. D.,

who came to work in the hotel the latter part of September, and came down with typhoid within eight days from the time of her arrival.

In view of the fact that thousands of people visit Lake Wawasee every summer, that the conditions at various points are as described elsewhere in this report, and that the probability for persons going to a summer resort for a rest of having a typhoid infection, either a mild case or a convalescent, seems somewhat greater than the normal population of a city or town, we think it remarkable that a history of more typhoid could not be traced to the sanitation around Lake Wawasee than the Vawter Park epidemic of the summer of 1915 and the four cases at the Vawter Park Hotel in the autumn of 1914.

SANITARY SURVEY OF LAKE WAWASEE RESORTS.  
TABULATION SHOWING COTTAGE OWNERS AND REPORT ON SANITARY CONDITIONS.

Insp. No.	Location.	Owner.	Owner's Address.	Condition of Water Supply	Sewage Disposal.		Remarks.
					Device.	Condition.	
1	Kale Island	W. Colwell.	Syracuse		Privy	C	
2	Kale Island	S. C. Leeper	Syracuse		Privy	C	
3	Kale Island	J. H. Weaver	Elkhart		Privy	C	
4	Kale Island	Jas. Roberts	Syracuse		Privy	C	
5	Kale Island	Mr. Clayton	Garrett		Privy	C	
6	Kale Island	W. Laving	Syracuse		Privy	C	
7	Kale Island	W. Whitton	Elkhart	Bad	Privy	C	
8	Kale Island	S. J. Snively	Elkhart		Privy	C	
9	Kale Island	S. J. Snively	Elkhart		Privy	C	
10	Kale Island	G. C. Clark	Chicago, Ill.		Privy	C	
11	Kale Island	J. S. Brown	Nappanee		Privy	C	
12	Kale Island	Inks.	Nappanee		Privy	C	
13	Kale Island	T. Walters	Bremen		Privy	C	
14	Kale Island	Mrs. J. Hagers	Goshen		Privy	C	
15	Kale Island	F. Kidder	Goshen		Privy	C	
16	Kale Island	B. Bausman	Millford		Privy	C	
17	Pickwick Park	Dillman Kickert	Nappanee		Privy	C	
18	Pickwick Park	J. Obers	South Bend		Privy	C	
19	Pickwick Park	L. R. Miles	Millford	Bad	Privy	C	
20	Pickwick Park	H. Egbert	Goshen	Good	Privy	C	
21	Pickwick Park	J. Egbert	Goshen		Privy	C	
22	Pickwick Park	C. M. Kleder	Marion		Cesspool	B	
23	Pickwick Park	Mrs. D. Zook	Nappanee		Cesspool		
24	Pickwick Park	F. Coppes	Nappanee		Cesspool		
25	Pickwick Park	J. D. Coppes	Nappanee		Cesspool		
26	Pickwick Park		Goshen		Privy	C	
27	Pickwick Park	F. Abbott, Jr.	Nappanee		Cesspool		
28	Pickwick Park	Geo. Lamb	Nappanee		Privy		
29	Pickwick Park	J. McMahon	Syracuse		Privy	D	
30	Willow Grove	I. A. Hoy	Garrett				1
31	Willow Grove	R. E. Stout	Indianapolis		Privy	C	
32	Willow Grove	Chas. Cook	Goshen		Privy	C	
33	Willow Grove	A. Deahl	Goshen		Privy	C	
34	Willow Grove	E. E. Tiedman	Goshen		Privy	C	
35	Willow Grove	J. Burkett	Goshen		Privy	C	
36	Willow Grove	W. Whitaker	Goshen	Satisfactory.	Privy	C	
37	Willow Grove						

See key at end of table.



38	Willow Grove.....	W. Whittaker.....	Goshen.....	Satisfactory.....	Privy.....	D	2
39	Willow Grove.....	D. Hirschberger.....	Garrett.....	Satisfactory.....	Privy.....	C	2
40	Willow Grove.....	Wm. Miller.....	Syracuse.....	Satisfactory.....	Hotel.....	C	2
41	Jones Landing.....	A. M. Jones.....	Syracuse.....	Satisfactory.....	Privy.....	C	3
42	Jones Landing.....	A. M. Jones.....	Syracuse.....	Satisfactory.....	Privy.....	C	
43	Jones Landing.....	C. Cromwell.....	Goshen.....	.....	Privy.....	C	
44	Jones Landing.....	Lewis Bartholomew.....	Goshen.....	.....	Privy.....	C	
45	Jones Landing.....	C. A. Cook.....	Goshen.....	.....	Privy.....	C	
46	Jones Landing.....	E. E. Mumment.....	Fort Wayne.....	.....	Privy.....	C	
47	Jones Landing.....	H. H. Rosse.....	Indianapolis.....	.....	Privy.....	C	
48	Jones Landing.....	J. Tedrowe.....	Goshen.....	.....	Privy.....	B	
50	Jones Landing.....	F. Hubbel.....	Goshen.....	.....	Privy.....	A	
51	Jones Landing.....	F. Derby.....	Goshen.....	.....	Privy.....	C	
52	Jones Landing.....	C. Newell.....	Goshen.....	.....	Privy.....	C	
53	Jones Landing.....	F. T. Hendry.....	Detroit, Michigan.....	Satisfactory.....	Privy.....	C	
54	Jones Landing.....	M. Ott.....	Benton.....	.....	Privy.....	C	
55	Jones Landing.....	Sarah Butler.....	Benton.....	.....	Privy.....	C	
56	Jones Landing.....	Sarah Butler.....	Benton.....	.....	Privy.....	C	
57	Jones Landing.....	E. Vatef.....	Muncie.....	.....	Cesspool.....	C	
58	Jones Landing.....	G. Alderman.....	Goshen.....	.....	Privy.....	C	
59	Jones Landing.....	L. S. Ganter.....	Muncie.....	.....	Privy.....	C	
60	Jones Landing.....	Jennie Baker.....	Garrett.....	.....	Privy.....	C	
61	Jones Landing.....	Dr. W. H. Baker.....	South Bond.....	Satisfactory.....	Privy.....	C	
62	Jones Landing.....	R. McGee.....	Fort Wayne.....	.....	Privy.....	C	
63	Jones Landing.....	Dr. Bulson.....	Fort Wayne.....	.....	Septic Tank.....	C	
64	Jones Landing.....	E. E. Stonder.....	Fort Wayne.....	.....	Septic Tank.....	C	
65	Jones Landing.....	E. Newell.....	Goshen.....	.....	Privy.....	C	
66	Jones Landing.....	C. E. Gorham.....	Goshen.....	.....	Cesspool.....	C	
67	Jones Landing.....	A. M. Jones.....	Syracuse.....	.....	Septic Tank.....	C	
68	Jones Landing.....	P. Vanda.....	Garrett.....	.....	Privy.....	D	
69	Wawasee.....	C. E. Bishop.....	Wawasee.....	Satisfactory.....	Privy.....	D	
70	Wawasee.....	Sargent's Hotel.....	Wawasee.....	Satisfactory.....	Privy.....	B	
71	Wawasee.....	W. A. Lilly.....	Indianapolis.....	Satisfactory.....	Septic Tank.....	C	
72	Wawasee.....	Wawasee Inn.....	Wawasee.....	Satisfactory.....	Cesspool.....	C	
73	Wawasee.....	Wawasee Inn.....	Wawasee.....	Satisfactory.....	Cesspool.....	C	
74	Wawasee.....	Red Riddles.....	Wawasee.....	Satisfactory.....	Privy.....	C	
75	Wawasee.....	E. Durand.....	Chicago, Illinois.....	.....	.....	C	
76	Ogden Island.....	J. Kunkeman.....	Ligonier.....	.....	Privy.....	C	
77	Ogden Island.....	Wm. Inks.....	Ligonier.....	.....	Privy.....	C	
78	Ogden Island.....	F. Boetherwell.....	Ligonier.....	.....	Privy.....	C	
79	Ogden Island.....	Mrs. Patterson.....	Wolf Lake.....	Satisfactory.....	Privy.....	C	
80	Ogden Island.....	W. S. Kiser.....	Cromwell.....	Satisfactory.....	Privy.....	C	
81	Ogden Island.....	Chas. Nelson.....	Ligonier.....	.....	Privy.....	C	
82	Ogden Island.....	Dr. J. W. Morr.....	Albion.....	.....	Privy.....	B	
83	Ogden Island.....	Albion Club.....	Albion.....	.....	Privy.....	C	
84	Ogden Island.....	Dan Rench.....	Ligonier.....	Satisfactory.....	Privy.....	D	
85	Ogden Island.....	Wm. Grumpp.....	Muncie.....	.....	Privy.....	D	1

SANITARY SURVEY OF LAKE WAWASEE RESORTS.  
TABULATION SHOWING COTTAGE OWNERS AND REPORT ON SANITARY CONDITIONS.—Continued.

Insp. No.	Location.	Owner.	Owner's Address.	Condition of Water Supply.	Sewage Disposals		Remarks.
					Device.	Condition.	
86	Cedar Point.	J. E. D. Crow	Syracuse.	.....	Privy.	C	1
87	Cedar Point.	E. N. Flick	Syracuse.	.....	Privy.	C	
88	Cedar Point.	Wm. Crow	Syracuse.	Satisfactory.	Privy.	A	
89	Cedar Point.	C. M. Sloane.	Cromwell.	.....	Privy.	D	
90	Cedar Point.	F. C. Clemer.	Hicksville, Ohio.	Satisfactory.	Privy.	C	
91	Cedar Point.	Buck	Fort Wayne.	.....	Privy.	C	
92	Cedar Point.	Frank Grier	Fort Wayne.	.....	Privy.	C	
93	Cedar Point.	M. G. Beaver	Fort Wayne.	.....	Privy.	C	
94	Cedar Point.	S. Dowell	Topeka.	.....	Privy.	C	2
95	Cedar Point.	G. Durfee.	Fort Wayne.	.....	Privy.	C	
96	Cedar Point.	J. A. Craig.	Fort Wayne.	Satisfactory.	Privy.	B	
97	Cedar Point.	T. Smook	Fort Wayne.	.....	Privy.	D	
98	Waveland Beach.	A. W. Johnson.	Indianapolis.	.....	Privy.	C	1
99	Waveland Beach.	J. E. Rarick	Syracuse.	Satisfactory.	Privy.	D	1
100	Waveland Beach.	Mollnaux	Syracuse.	.....	Privy.	D	
101	Waveland Beach.	E. W. Flickinger.	Ossian, Michigan.	.....	Privy.	D	
102	Waveland Beach.	E. W. Flickinger.	Ossian, Michigan.	.....	Privy.	D	
103	Waveland Beach.	Henry Doll.	Syracuse.	Bad.	Privy.	C	1
104	Waveland Beach.	A. E. Fick.	Syracuse.	Satisfactory.	Privy.	D	5
105	Crows Nest.	A. E. Fick.	Syracuse.	.....	Privy.	D	
106	Crows Nest.	A. E. Fick.	Syracuse.	.....	Privy.	D	
107	Crows Nest.	A. E. Fick.	Syracuse.	.....	Privy.	D	
108	Crows Nest.	A. E. McDonald.	Syracuse.	Satisfactory.	Privy.	E	
109	Natty Crow Beach.	J. E. Baum.	Ligonier.	Satisfactory.	Privy.	C	
110	Natty Crow Beach.	I. C. Schlottback.	Ligonier.	.....	Privy.	C	
111	Natty Crow Beach.	J. Kinnison.	Ligonier.	.....	Privy.	C	
112	Natty Crow Beach.	H. Inks.	Ligonier.	Satisfactory.	Privy.	C	1
113	Natty Crow Beach.	F. Raubert.	Ligonier.	.....	Privy.	D	1
114	Natty Crow Beach.	H. Spurgson.	Ligonier.	.....	Privy.	D	1
115	Natty Crow Beach.	W. S. Wise.	Goshen.	.....	Privy.	D	1
116	Natty Crow Beach.	C. Simmons.	Ligonier.	.....	Privy.	D	1
117	Natty Crow Beach.	J. H. Green.	Ligonier.	.....	Privy.	C	1
118	Natty Crow Beach.	O. Oldfather.	Ligonier.	.....	Privy.	C	
119	Natty Crow Beach.	D. E. Scott.	Indianapolis.	.....	Privy.	D	
120	Natty Crow Beach.	J. D. Kreeger.	Ligonier.	.....	Privy.	D	
121	Natty Crow Beach.	G. Sack.	Ligonier.	.....	Privy.	C	1
122	Natty Crow Beach.						

123	Natty Crow Beach.	F. P. Wood	Ligonier.	Privy	0	1
124	Natty Crow Beach.	T. Younger	Greencastle	Privy	0	
125	Natty Crow Beach.	F. Vanderamith	South Bend	Privy	0	1
126	Natty Crow Beach.	Dr. A. Gants	Ligonier	Privy	0	
127	Natty Crow Beach.	I. Schlotterback	Ligonier	Privy	0	
128	Morrison Island	C. Gumppe	Fort Wayne.	Privy	0	
129	Morrison Island	Jas. Smith	Ligonier	Privy	0	
130	Morrison Island	J. O'Hara	Bloomington	Privy	0	
131	Morrison Island	F. Eckhart	Fort Wayne.	Privy	0	
132	Morrison Island	C. Schlotterback	Cromwell	Privy	0	
133	Morrison Island	E. Moore	Cromwell	Privy	0	
134	Morrison Island	P. W. Fair	Fort Wayne.	Privy	0	
135	Morrison Island	M. Moore	Cromwell	Privy	0	
136	Morrison Island	C. Seymour	Cromwell	Privy	0	
137	Morrison Island	W. Shaffer	South Bend	Privy	0	
138	Morrison Island	G. Baillie	Fort Wayne.	Privy	0	
139	Morrison Island	Dr. Schultz	Fort Wayne.	Privy	0	
140	Buttermilk Point.	C. E. Johnson	Syracuse.	Satisfactory	0	
141	Buttermilk Point.	C. E. Johnson	Syracuse.	Satisfactory	0	
142	Buttermilk Point.	I. Klingman	Syracuse.	Privy	0	
143	Buttermilk Point.	C. McClintick	Syracuse.	Satisfactory	0	
144	Buttermilk Point.	Wm. Rapp	Syracuse.	Privy	0	
145	Buttermilk Point.	R. Miller	Topeka.	Privy	0	
146	Buttermilk Point.	Blitz	Syracuse.	Satisfactory	0	
147	Vawter Park.	Nancy Sudlow	Syracuse.	Cesspool.	0	
148	Vawter Park.	G. Mullinger	Syracuse.	Privy	0	
150	Vawter Park.	Fred Grider	Syracuse.	Privy	0	
151	Vawter Park.	Victor Smith	Syracuse.	Privy	0	
152	Vawter Park.	Nancy Sudlow	Syracuse.	Privy	0	
153	Vawter Park.	G. Zanders	Syracuse.	Privy	0	
154	Vawter Park.	Nancy Sudlow	Syracuse.	Privy	0	
155	Vawter Park.	Nancy Sudlow	Syracuse.	Privy	0	
156	Vawter Park.	Nancy Sudlow	Syracuse.	Privy	0	
157	Vawter Park.	J. H. White	Syracuse.	Privy	0	
158	Vawter Park.	J. H. White	Michigan City	Privy	0	
159	Vawter Park.	G. Quick	Indianapolis.	Cesspool	0	
160	Vawter Park.	W. H. Perrin	LaFayette	Cesspool	0	
161	Vawter Park.	O. C. Dunn	Franklin	Privy	0	
162	Vawter Park.	Mary Sweet	New Kingston, Pa	Privy	0	
163	Vawter Park.	F. Remy	Indianapolis.	Cesspool	0	
164	Vawter Park.	C. A. Rusoh	Indianapolis.	Privy	0	
165	Vawter Park.	H. Whitcomb	Clinton	Privy	0	
166	Vawter Park.	B. A. Penrath	Indianapolis	Privy	0	
167	Vawter Park.	E. A. Hardin	Indianapolis	Privy	0	
168	Vawter Park.	W. B. McCullough.	Franklin	Privy	0	
169	Vawter Park.	E. A. Miller	Franklin	Privy	0	
170	Vawter Park.	F. C. Parso	Indianapolis.	Privy	0	
171	Vawter Park.	Allen King	Wabash	Privy	0	

SANITARY SURVEY OF LAKE WAWASEE RESORTS.  
TABULATION SHOWING COTTAGE OWNERS AND REPORT ON SANITARY CONDITIONS.—Continued.

Insp. No.	Location.	Owner.	Owner's Address.	Condition of Water Supply.	Sewage Disposal.		Remarks.
					Device.	Condition.	
172	Vawter Park	A. L. Stephenson	Wabash.	.....	Privy	C	
173	Vawter Park	C. D. Butler	Indianapolis.	.....	Privy	C	
174	Vawter Park	R. F. Lutz	Wabash.	.....	Privy	C	
175	Vawter Park	Mary A. Still	Wabash.	.....	Privy	C	
176	Vawter Park	S. E. Cowgill	Wabash.	.....	Privy	C	
177	Vawter Park	H. S. King	Wabash.	.....	Privy	C	
178	Vawter Park	C. Latchem	Wabash.	.....	Privy	C	
179	Vawter Park	Dr. O. O'Neil	Chicago, Illinois	.....	Privy	C	
180	Vawter Park	Dr. O. O'Neil	Chicago, Illinois	.....	Privy	C	1
181	Vawter Park	Vawter Park Hotel	Syracuse.	.....	Privy	C	
182	Vawter Park	L. Solt	Syracuse.	.....	Privy	C	
183	Vawter Park	L. Solt	Syracuse.	.....	Privy	C	
184	Vawter Park	M. C. Honeywell	Wabash.	.....	Privy	C	1
185	Vawter Park	R. S. Conrad	Kokomo.	.....	Cesspool.	C	
186	Vawter Park	Rose Heyn	Syracuse.	.....	Privy	C	
187	Vawter Park	J. G. Brannum	Indianapolis.	.....	Cesspool.	C	
188	Vawter Park	W. S. Ellis	Anderson.	.....	Privy	C	
189	Vawter Park	C. Miller	Anderson.	.....	.....	.....	
190	Vawter Park	Reolds	Anderson.	.....	.....	.....	
191	Vawter Park	W. R. Parks	Chicago, Illinois.	.....	Privy	B	
192	Vawter Park	F. M. Shields.	Seymour.	.....	Privy	C	
193	Vawter Park	Dr. Rogers	Fort Wayne.	.....	Privy	C	
194	Vawter Park	Will Dale	Goshen.	.....	Privy	C	
195	Vawter Park	C. Vawter	Cincinnati, Ohio	.....	Privy	C	
196	Vawter Park	Ja. Gill	Whiting.	.....	Privy	C	
197	Vawter Park	J. H. Moore	Cincinnati, Ohio.	.....	Privy	B	
198	Vawter Park	E. Robinson	Syracuse.	.....	Privy	B	
199	Vawter Park	C. D. Murray	Syracuse.	.....	Privy	C	4
200	Vawter Park	C. D. Murray	Syracuse.	.....	Privy	C	
201	Vawter Park	J. A. vanOsdel	Anderson.	.....	Privy	C	
202	Vawter Park	J. C. Eberhardt	Mishawaka.	.....	Privy	C	
203	Vawter Park	M. L. White	Noblesville.	.....	Privy	B	
204	Vawter Park	Ada Redman	Syracuse.	.....	Privy	D	1
205	Vawter Park	C. H. Fitz	Syracuse.	.....	Privy	C	
206	South Park	C. A. Sudlow	Indianapolis.	.....	Privy	D	
207	South Park	F. E. Marsh.	Syracuse.	.....	Privy	C	1
208	South Park	John Vorhees	Syracuse.	.....	Privy	C	

209	South Park	E. O. Langen	Indianapolis	Satisfactory	Privy	D	1
210	South Park	T. F. Vaughn	Wabash	Satisfactory	Cesspool	D	1
211	South Park	W. J. Gronner	Elkhart	Satisfactory	Privy	B	
212	South Park	S. H. Witmer	Buffalo, N. Y.	Satisfactory	Cesspool		
213	South Park	B. Walters	Wabash	Rev. Seamans	Privy		
214	South Park	Rev. Seamans	Warsaw	Satisfactory	Privy	C	4
215	South Park	Dr. B. Frazier	Louisville, Ky.	Satisfactory	Privy	D	1
216	South Park	Lake View Hotel	Syracuse	Satisfactory	Privy	D	
217	South Park	Waco Pavillion	Syracuse	Satisfactory	Privy	D	
218	South Park	B. Hoopingarner	Waterford Mills	Bad	Privy	C	
219	Goshen Landing	O. Woomer	Nappanee	Bad	Privy	C	
220	Goshen Landing	M. McChitock	Syracuse	Satisfactory	Cesspool		
221	Goshen Landing	Wm. Torn	Marion	Satisfactory	Privy		
222	Goshen Landing	Robert Burke	Syracuse	Bad	Privy	C	
223	Goshen Landing	A. W. Striebay	Goshen	Bad	Privy	C	
224	Goshen Landing	J. Heedner	Goshen	Goshen	Privy		
225	Goshen Landing	H. Winters	Goshen	Goshen	Privy		
226	Goshen Landing	W. Burkey	Goshen	Goshen	Privy		
227	Goshen Landing	Sam Lewis	Goshen	Goshen	Privy		
228	Goshen Landing	G. S. Cobb	New Paris	Satisfactory	Privy	C	1
229	Goshen Landing	L. H. Brakes	Goshen	Satisfactory	Privy	D	1
230	Goshen Landing	V. U. Young	Gary	Gary	Privy	C	4
231	Goshen Landing	J. Phillips	Syracuse	Bad	Privy	D	
232	Goshen Landing	D. H. Brunjes Annex	Syracuse	Satisfactory	Cesspool		
233	Goshen Landing	D. H. Brunjes	Syracuse	Satisfactory	Privy	D	
234	Goshen Landing	D. H. Brunjes	Syracuse	Satisfactory	Privy	C	
235	Goshen Landing	S. Freeman	Syracuse	Satisfactory	Privy	C	
236	Goshen Landing	J. P. Singrey	Fort Wayne	Satisfactory	Cesspool		
237	Goshen Landing	E. Jenge	Kendallville	Satisfactory	Privy	C	
238	Goshen Landing	E. George	Syracuse	Bad	Privy	C	
239	Goshen Landing	E. George	Syracuse	Bad	Privy	C	
240	Goshen Landing	P. W. Soltan	Syracuse	Satisfactory	Privy	C	
241	Goshen Landing	P. W. Soltan	Syracuse	Satisfactory	Privy	D	
242	Oakwood Park	F. Landeman	Bremen	Satisfactory	Privy	D	
243	Oakwood Park	Rev. Newman	South Bend	Bad	Privy	D	
244	Oakwood Park	Rev. Mosler	South Bend	Rev. Mosler	Cesspool		
245	Oakwood Park	Rev. Mosler	South Bend	Rev. Mosler	Cesspool		
246	Oakwood Park	Rev. Mosler	South Bend	Rev. Mosler	Cesspool		
247	Oakwood Park	Rev. Mosler	South Bend	Rev. Mosler	Cesspool		
248	Oakwood Park	Rev. Mosler	South Bend	Rev. Mosler	Cesspool		
249	Oakwood Park	Rev. Mosler	South Bend	Rev. Mosler	Cesspool		
250	Oakwood Park	Rev. Mosler	South Bend	Rev. Mosler	Cesspool		
251	Oakwood Park	Rev. Mosler	South Bend	Rev. Mosler	Cesspool		
252	Oakwood Park	Rev. Mosler	South Bend	Rev. Mosler	Cesspool		
253	Oakwood Park	Rev. Mosler	South Bend	Rev. Mosler	Cesspool		
254	Oakwood Park	Rev. Mosler	South Bend	Rev. Mosler	Cesspool		
255	Oakwood Park	Rev. Mosler	South Bend	Rev. Mosler	Cesspool		

SANITARY SURVEY OF LAKE WAWASEE RESORTS.  
TABULATION SHOWING COTTAGE OWNERS AND REPORT ON SANITARY CONDITIONS.—Continued.

Insp. No.	Location.	Owner.	Owner's Address.	Condition of Water Supply.	Sewage Disposal.		Remarks.
					Device.	Condition.	
256	Oakwood Park	E. J. Eberhardt.	Indianapolis	.....	.....	.....	
257	Oakwood Park	Mary Newman	Indianapolis	.....	.....	.....	
258	Oakwood Park	C. Rohrer	New Paris	.....	.....	.....	
259	Oakwood Park	W. H. Borkman	North Bend	.....	.....	.....	
260	Oakwood Park	Rev. F. Hartman	South Webster	.....	.....	.....	
261	Oakwood Park	Rev. Nepper	New Paris	.....	.....	.....	
262	Oakwood Park	C. Rhodes	Bremen	.....	.....	.....	
263	Oakwood Park	Rev. Bridges	Portland	.....	Septic Tank	.....	
264	Oakwood Park	C. Hettler	Fort Wayne	.....	Cesspool	.....	

\* Key to "Remarks of Sanitary Condition of Cottages.

1. Privy in bad condition.
2. Privy built on marsh or channel. Lake pollution likely.
3. Septic tank to be rebuilt.
4. Order issued to remove privy.
5. Ordered to construct a sanitary privy.

## THE VALPARAISO PUBLIC WATER SUPPLY.

JOHN C. DIGGS, Sanitary Engineer.

Usually the services of the Water Department of the Indiana State Board of Health are not requested until there is very good evidence for suspecting that a water supply is the cause of an epidemic of typhoid fever or similar disease or until bacteriological examinations have shown that the purification devices in a water filtration plant are not in efficient operation. The city of Valparaiso and the officials of the Home Water Company are to be highly commended because of their far-sightedness in their interest to have investigated a condition which might affect the quality of their public water supply and their desire to know the exact status of the sanitary conditions of the watershed from which their supply of drinking water is drawn.

Flint Lake from which this city takes its public supply is perhaps one of the cleanest bodies of water in Indiana used as a public water supply and for several years unusual precautions have been taken by both the city and water works officials to maintain the lake in a very high degree of purity. Their zeal in this matter is best illustrated by their action in requesting a sanitary survey and careful examination of additional watershed area recently acquired through the construction of a pipe line to a tract of land which naturally drains south into the Kankakee River. The petition from the Secretary of the Home Water Company in June 1916 asked that a sanitary survey be made of all the land which drains into Flint Lake and that bacteriological studies be made of the water of this land and of the efficiency of the water purification plant. This survey was conducted by the Sanitary Engineer of the State Board of Health, July 20 to 27, 1916, and included bacteriological studies made in the laboratory of the water works plant.

### *The Watershed.*

The water supply of Valparaiso is taken from Flint Lake, the largest and lowest of a chain of six lakes lying in a flat but most arable basin which naturally drain through a branch into the Kankakee River. The basin is roughly two miles long by one mile wide and has a total area of 1,282 acres. A large part of the tract is quite low—much of it rising only a few feet above the water level. The elevation of Flint Lake, as determined by a topographic survey conducted by students from Valparaiso

University, is 791 feet. The highest elevation included in the watershed is 850 feet.

There occurs in the basin a chain of lakes varying in size from mere sink holes to Flint Lake and Long Lake which are approximately one half of a mile in length. Wahob Lake which lies at the upper end of this lake is remarkably clear and free from color in contrast to the other lakes of the basin. It receives very little water from marshy land, being evidently a kettle-hole in the thick bed of glacial drift which covers the entire northern portion of the state. Canada Lake, an area of a few acres, connected by a partially filled channel with Long Lake is the color of amber, the color evidently is due to the bog iron ore and leachings from beds of peat which underlie much of the swampy area. Long Lake is an elongated channel emptying into Flint Lake. Its greatest width is 80 rods.

Flint Lake occupies an area of approximately 100 acres. Although a large part of the lake is shallow water, the maximum depth is 70 feet. The average content of the lake is 370,000,000 gallons. Obviously, this entire volume of the water is not available for the power plant, but it does greatly assist as a storage basin for natural purification of the watershed runoff.

During recent years the precipitation during the winter months has been so light that the water level of Flint Lake has been decidedly lowered. It is brought to its original level only after a period of considerable rainfall. A matter which has tended further to decrease the level of the water in Flint Lake during the dry months is the dam constructed between Long and Flint Lakes. The dam was made by filling up the channel between these two lakes and served a purpose of keeping Long Lake at practically its original level. By such construction Flint Lake was robbed of more than one-half of its watershed during the period when the water in Long Lake stood below the crest of the dam. To assure a plentiful supply of water in the future without lowering the level of Flint Lake to too great an extent, a pipe line was constructed which will bring into the lake the runoff from a tract of land which naturally drains into the Kakankee River. The new pipe line which at one point is laid at a depth of 25 feet is expected to care for the entire runoff from 700 acres of land. By this addition the total area of the watershed is approximately 2,000 acres. After deducting 500 acres which is occupied by water or swampy area, the remaining 1,500 acres should produce a runoff of at least 12



inches per year which would mean a daily flow of 1,400,000 gallons.

Since the completion of this investigation the local company has undertaken construction which will add to the water shed an area of some 300 acres of rolling wood-land bordering Spectacle Lake. This region which will have a run-off of 15 inches. Will bring the mean daily flow of the entire watershed to approximately 1,700,000 gallons.

The land which forms the watershed of Flint Lake is naturally an agricultural region and is subject to pollution only by the usual conditions obtaining about the farm yard. Naturally the washings from fields fertilized by barnyard manure eventually reach the lakes. This is equally true of any waste water from farm houses and leachings from cesspools and privies. Probably the danger from conditions is not great, but it must be taken into consideration in the effort to produce a potable water supply.

There are located on the shores of Flint Lake four summer hotels and approximately seventy-five cottages. During this outing season each summer a large number of cottages about the shore are occupied by persons from Valparaiso, Chicago and other cities, the natural scenery, hills and forests surrounding the lakes offering a most inviting spot to those seeking out-door pastime and recreation. An interurban street railway line passing the shores of the lake makes direct connection with the cities of Gary, Hammond, East Chicago, LaPorte, Chesterton, and Valparaiso. With the large number of good hotels and dancing pavillions in addition to the bathing and fishing in the lake, the number of persons visiting the lake is rapidly increasing from year to year.

Very close inspection of the premises showed that the usual precautions have been taken by cottage owners in keeping the surroundings in a sanitary condition. At the best however, wherever people live in large numbers, the surface of the soil is certain to collect filth which inevitably will be washed into the lake.

#### *Quality of the Water of Flint Lake.*

The water of the chain of lakes which finds its way is impregnated with considerable coloring matter leached from the peat formations existing on the marshy shores. The water also, particularly at certain periods of the year, contains various agal forms which frequently give an objectionable taste or odor to the water. The fact that the impounded supply of Flint Lake is

almost entirely derived from the runoff from a watershed which is free from limestone formation renders the water particularly suitable for household and industrial uses because of its exceptional softness.

Bacteriological examinations were made of samples taken from the various points in the several lakes of the basin. It is well to state however, that the results found are probably not representative of the condition during the greater part of the year for two reasons. First, July was an unusually dry month, the total precipitation for the entire month shown by the report of the Weather Bureau Station located at the water works pumping plant being .20 inches, most of which occurred on July 2nd. At the time of the survey, July 20 to 25, practically no water was flowing into the lake. Second, the latter part of July was unusually clear allowing an unusual purification of sunlight. Thus all factors were ideal for bringing about the maximum purification.

Fifty-one samples taken from Flint Lake were examined for total bacterial counts and gas forming organisms. The maximum count was 280 per cc and the minimum 3 per cc. (See Table No. 1.)

Gas formers were found present in a majority of the 1 cc plantings and in one-third of the .1 cc plantings.

All samples were taken from one foot below the surface and ordinarily about 100 to 150 feet from the shore, it being the belief if any serious pollution occurred it would be most pronounced near the shore.

In order to study the effect of the summer cottages and bathing on the quality of the water two series of samples were taken on July 24th and 25th. These two sets of samples were taken at about 5 o'clock in the morning, the water having been very quiet for a period of ten hours after having been used for several hundred bathers on the day previous. Bacterial examinations of these samples are shown in Table No. 1.

Table No. 2 shows the average bacterial content of samples collected at 20 points about the lake and the calculated number of gas forming organisms occurring at each point. This table indicated that the quality of the water near the bathing beaches is decidedly worse at other points, yet the contamination does not spread about the lake sufficiently to endanger the supply at the water works intake.

Bacterial samples taken from Long Lake, Wahob Lake and

Canada Lake showed that each of these lakes which were not used for bathing purposes to any appreciable extent and which were contaminated only by drainage from barnyards and land washing were in no way superior in quality to Flint Lake. The results are reported in Table No. 3.

At the time of the inspection practically no runoff was coming from the new watershed, making a checking of the effect of the water from this area impossible.

In so far as the sanitary condition of this tract was equal to that of the old watershed, it is believed that no danger will arise when this tract is actually supplying water to Flint Lake.

The condition of Flint Lake may be summarized as follows: The water is not seriously contaminated. Contamination from bathing at the beaches is limited to a small area of water. The pollution does not reach the water works intake.

#### *Water Purification System.*

The public water system of Valparaiso was constructed in the year 1885 by the Michigan Pipe Company of Bay City, Michigan, and is owned and operated by the Valparaiso Home Water Company which is composed of citizens of Valparaiso.

Until 1908 the untreated Flint Lake water was supplied to the city of Valparaiso. In that year as a precaution to remedy a possible contamination of the lake supply by bathers or drainage and to remove the very unpleasant odor occurring in the city supply as a result of the decomposition of algae and other plant forms naturally growing in the lake, a mechanical filtration plant was constructed. Since the original installation several important changes whose installation experience has shown to be advisable have been made. One of these was the installation of an agitation for assisting in washing filter beds. Chemical treatment of the filtered water by hypochlorite originally installed in 1910 was replaced by chlorine has in 1916.

#### *The Pumping Station and Filtration Plant.*

Water flows through Flint Lake into a suction well through two 12 inch intakes extending approximately 300 feet into the lake. From the suction well the raw water is lifted to the mixing chamber, where, discharging over a funnel about four feet above the water line and dropping freely through the air, it has an excellent opportunity for aeration in the fall. By this aeration, the algae odors are largely eliminated. From the mixing chamber the aerated and coagulated water passes into the settling basin

and onto the filters. The filters are of the gravity type, three in number with a total capacity of 2,000,000 gallons. The filters as originally installed depended upon the upward rise of the water through the strainer heads for cleaning the sand. In 1914 air wash was added to assist in breaking up the film of sediment formed on the sand bed. Below the filters is located the filtered water of 9½ to 11 inches per minute reservoir. The filtered water is treated with chlorine gas fed by a Wallace and Tierman manually operated machine.

The pumps used in operating the plant are as follows: Two Lawrence "Vortex" centrifugal, engine driven pumps interconnected so that either pump may be used in lifting raw water into the mixing chamber or in washing the dirty filter beds by forcing water up through the strainer system; one Gaskell-Holly horizontal crank and flywheel, non-compound, condensing pumping engine of capacity 1,500,000 gallons per day, installed in 1885; one Dean Holyoke, duplex plunger and ring type, capacity 1,000,000 gallons, installed in 1902 for emergency only; one Canton-Hughes, cross compound crank and flywheel type, capacity 2,000,000 gallons, installed in 1913.

Continuous pumping in past years lowered the level of Flint Lake to such a degree the company installed three deep wells near the pumping plant. Although resulting in much harder water than that obtained from the lake, the supply was cool, clear and potable.

It is believed that the new watershed will furnish such an abundant supply that future operation of the wells will not be necessary, thus not only decreasing the cost of operation but also supplying the public with a softer water than would be possible with the well in use.

#### *Laboratory.*

The Home Water Company maintains a chemical and bacteriological laboratory in connection with the water purification plant. Daily examinations of water for total bacterial content and presence of organisms of the Coli group are made.

The pumping and purification plant is operated at a very high efficiency from the view point of sanitation as well as that of economy.

#### *Distribution System.*

Water is carried to the city of Valparaiso through a 12 inch wooden pipe line. All of the city mains are of wood and although

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part of it has been in use for thirty years, no trouble has been experienced in leakage.

There is installed in all 24 miles of mains, 145 fire hydrants and 1,477 consumers taps. The average daily pumpage is 850,000 gallons per day.

*Bacteriological Examination of Samples from the Purification Plant.*

Samples were taken from the suction well, filter effluents and tap water which had been treated with chlorine gas, on four separate days. The results of this test which is shown on Table 4 indicates that the raw water supplied to the plant is in a very satisfactory condition showing normally no gas forming organisms on .1 cc samples, but on 1 cc samples approximately 40% of the time. The filtered and tap water at the time of the tests showed very low bacterial counts averaging 7 and 9 respectively and gas formers present usually in 10 cc portions but not in 1 cc plantings. Confirmatory tests indicated that many of the gas forming organisms found in the tap water did not belong to the typical Coli group. The result of the entire bacteriological tests of the plant indicate that the raw water supply of the Home Water Company is of good quality and that the purified water supplied to the city of Valparaiso is in excellent condition and entirely satisfactory for a public water supply.

*Summary.*

First, the water supply of Valparaiso is derived from Flint Lake which is supplied by the runoff from an agricultural area which in addition to the washings from barnyards and cultivated fields receives some pollution from summer resort cottages and bathing beaches.

Second, the sanitation of the summer resort colony is very very satisfactory and has very little deleterious affect upon the quality of the water, used by the purification plant.

Third, by the addition of the new watershed to Flint Lake the volume of the water flowing to the lake will be greatly increased and the level of the lake raised to its former height. By the increase storage the quality of the lake water will be improved.

Fourth, the purification plant of the Home Water Company is very efficiently equipped and operated and the purified water supplied to the city is of very satisfactory quality.

TABLE No. I.  
SAMPLES FROM FLINT LAKE.

Sample No.	Date.	Source.	Bacterial Count Agar 37°C	Lactose Fermentation.		
				.1 cc.	1 cc.	10 cc.
9	7-20-16	Above Water Works Intake..	45	—	+	.....
10		Opposite Price's Hotel.....	35	—	+	.....
11		Near Long Lake Inlet.....	11	—	+	.....
12		West End.....	115	+	+	.....
13		South West End.....	7	—	+	.....
14	7-22-16	Opposite Jacob's Cottage.....	150	—	+	.....
15		New Watershed Inlet.....	150	—	+	.....
16		Opposite Specht Drain.....	12	—	+	.....
17		Opposite Flint Lake Outlet.....	280	—	+	.....
25		Near Long Lake Inlet.....	12	—	+	.....
26	7-24-16	West End.....	32	—	+	.....
27		Southwest End.....	30	—	—	.....
28		Opposite Jacob's Cottage.....	8	—	—	.....
29		Opposite New Watershed.....	55	—	—	.....
30		Opposite Specht Drain.....	3	—	+	.....
31	7-25-16	Opposite Flint Lake Outlet.....	46	—	+	.....
32		Above Water Works Intake..	9	—	—	.....
37		Foot of Lytle Ice Shute, 5 feet	32	—	+	.....
38		Beach Inn, End of Pier, 7 feet	110	—	+	.....
39		Sheridan Pavillion, 7 feet.....	25	—	+	.....
40	7-25-16	Sheridan Restaurant, 7 feet.....	10	—	+	.....
41		Sheridan Hotel, 6 feet.....	14	—	+	.....
42		Midway-Sheridan Beach.....	90	—	+	.....
43		Andressen Cottage.....	17	—	—	.....
44		Opposite Price's Hotel.....	26	—	—	.....
45	7-25-16	Opposite Sherwood Cottage.....	65	—	—	.....
46		Opposite Leslie's Cottage.....	70	—	—	.....
47		Opposite Long Lake Inlet.....	17	—	—	.....
48		West End.....	145	—	—	.....
49		Southwest End.....	35	—	—	.....
50	7-25-16	Opp. New Watershed Inlet.....	55	—	—	.....
51		Opposite Specht's Pier.....	22	+	+	.....
52		Opposite Specht's Float.....	26	+	+	.....
53		Opposite Flint Lake Outlet.....	120	—	—	.....
60		Foot Lytle Ice Shute.....	43	+	+	.....
61	7-25-16	Beach Inn.....	65	+	+	.....
63		Sheridan Restaurant.....	40	+	+	.....
64		Sheridan Hotel.....	72	+	+	.....
65		Midway, Sheridan-Beck's Cottage.....	15	+	+	.....
66		Andressen.....	165	+	+	.....
67	7-25-16	Opposite Price's Hotel.....	15	+	—	.....
68		Opposite Sherwood Cottage.....	14	—	—	.....
69		Opposite Leslie's Cottage.....	7	—	+	.....
70		Opposite Long Lake Inlet.....	3	—	+	.....
71		West End.....	60	—	+	.....
72	7-25-16	South West End.....	95	+	+	.....
73		Opp. New Watershed Inlet.....	35	+	+	.....
74		Opposite Specht's Pier.....	32	+	+	.....
75		Opposite Specht's Float.....	15	—	+	.....
76		Flint Lake Outlet.....	26	—	+	.....



**BACTERIOLOGICAL EXAMINATION OF SAMPLES TAKEN FROM FLINT LAKE, JULY 20 to 25, 1916.**

TABLE No. II.

Sampling Point.	Average Bacteria per cc Agar at 37°C.	Gas Forming Organisms per 100 cc Lactose	Remarks.
Foot of Lytle's Ice Shute.....	37	500	Bathing Beach.
Beach Inn, 100 feet from shore.....	87	100	
Sheridan Pavillion 100 feet from shore		500	
Sheridan Restaurant 100 feet from shore.	30	500	
Sheridan Hotel 100 feet from shore	43	100	
Midway Sheridan Hotel and Beals Cottage.....	57	500	
Andressen Cottage, 100 feet from shore.....	90	100	
Price's Hotel, 100 feet from shore....	29	333	
Sherwood Cottage, 100 <sub>A</sub> feet from shore.....	40	00	
Lealie's Cottage, 100 feet from shore	38	50	
Long Lake Inlet, 100 feet from shore	11	75	Bathing Beach.
West End, 100 feet from shore.....	90	250	
Southwest End, 100 feet from shore...	29	250	
Jacob's Cottage, 100 feet from shore...	79	50	
New Watershed Inlet, 100 feet from shore.....	74	50	
Specht's Drain, 100 feet from shore.....	7	50	
Specht's Pier, 100 feet from shore....	27	1,000	
Specht's Float, 100 feet from shore...	20	500	
Outlet, 100 feet from shore.....	93	75	
Over Water Works Intake.....	27	50	

**BACTERIOLOGICAL EXAMINATION OF SAMPLES FROM WAHOB LAKE, CANADA LAKE AND LONG LAKE.**

TABLE No. III.

Samples No.	Date.	Source.	Bacteria per cc.	Lactose Fermentation.		
				.1	1 cc.	10 cc.
1	7-20-16	Outlet, Wahob Lake .....	1	—	+	+
2		Center Wahob Lake .....	150	+	+	+
3		Near Pier, Wahob Lake.....	25	+	+	+
4		Center of Canada Lake.....	400	+	+	+
5		Outlet of Canada Lake.....	250	+	+	+
6		Narrows of Long Lake.....	96	+	+	+
7		Opposite Garden Inn Long Lake.....	425	+	+	+
8	7-22-16	North End, Long Lake.....	120	+	+	+
22		North End, Long Lake.....	230	+	+	.....
23		Opposite Garden Inn Long Lake.....	46	+	+	.....
24		Narrows of Long Lake.....	230	—	+	.....

**BACTERIOLOGICAL EXAMINATION OF SAMPLES FROM THE WATER  
PURIFICATION PLANT OF VALPARAISO, INDIANA.  
JULY 20-25, 1916.**

TABLE No. IV.

Sample No.	Date.	Source.	Bacteria per cc Agar 37°C.	Gas Formation Lactose.			B. Coll Conforma- tion Entero Me- dium.
				1 cc.	1 cc.	10 cc.	
18	7-20-16	Raw Water....	102.	—	—	+	.....
19	7-20-16	Filter No. 1....	7	—	—	+	.....
20	7-20-16	Filter No. 2....	7	—	+	+	.....
21	7-20-16	Tap.....	5	—	—	+	.....
33	7-22-16	Raw Water....	9	—	+	+	.....
34	7-22-16	Filter No. 1....	8	—	—	+	.....
35	7-22-16	Filter No. 3....	5	—	—	+	.....
36	7-22-16	Tap.....	10	—	—	+	.....
56	7-24-16	Raw Water....	30	—	—	+	.....
57	7-24-16	Filter.....	7	.....	—	+	.....
58	7-24-16	Filter.....	7	.....	—	+	.....
59	7-24-16	Tap.....	9	.....	—	+	.....
77	7-25-16	Raw Water....	9	.....	+	+	.....
78	7-25-16	Filter No. 1....	15	.....	.....	—	.....
79	7-25-16	Filter No. 3....	20	—	—	—	.....
80	7-25-16	Tap.....	5	.....	—	—	.....

**Average Bacteriological Condition as found by Examination on Four Days.**

		Gas Formers per cc.
Raw Water....	37	.40
Filtered Water.	9	.11
Tap.....	7	.20

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**REPORT**  
**OF THE**  
**DEPARTMENT OF WEIGHTS AND**  
**MEASURES**

**LABORATORY OF HYGIENE**

**FOR THE YEAR ENDING**

**DECEMBER 31, 1916**

---

**H. E. BARNARD, Ph.D.**  
**State Commissioner of Weights and Measures**





**REPORT OF THE STATE DEPARTMENT OF WEIGHTS  
AND MEASURES FOR THE YEAR ENDING  
DECEMBER 31, 1916.**

---

H. E. BARNARD, PH.D.

State Commissioner of Weights and Measures.

*To His Excellency, Samuel M. Ralston,*  
Governor:—

In accordance with that provision of the Weights and Measures Law, Acts of 1911, Section two, which requires that an annual report be made by the State Commissioner of Weights and Measures of the work of the State Department of Weights and Measures, I have the honor to advise you as follows:

The inspectors working in the several cities and counties during the year tested 22,785 weighing machines of which 20.34% were found incorrect. They tested 16,638 weights, of which 15.23% were incorrect; 12,645 dry measures were tested, of which 15.03% were incorrect; 8,735 liquid measures were tested, of which 14.09% were incorrect; 1,986 automatic pumps were tested, of which 25.76% were incorrect; 6,503 milk bottles were tested, of which 11.37% were incorrect; 2,235 counter measures were tested, of which 20.16% were incorrect; 8,362 barrels, baskets, berry boxes and crates were tested, of which 84.20% were found incorrect; 207 gas and electric meters were tested of which 24.15% were incorrect; 497 oil and milk cans were tested, of which 4.06% were incorrect. One hundred and thirty-nine glass graduates and metric measures were tested and found correct. The grand total of inspections made during the year 1916 was 80,735.

The work of the inspectors is tabulated to show both grand totals for the state and the detail of their work in their respective cities or counties.

Eighty-three prosecutions were brought during the year for violation of the Weights and Measures Law. Convictions were obtained in 57 cases, 26 cases were dismissed or continued. Fines to the amount of \$1,021.00 were imposed.

The value of the work of the Department is not shown by tabulated reports, nor can it be estimated by the number of prosecutions brought or convictions obtained. It is best deter-

mined by the stability of the standards of weights and measures as they are put in every day use in the conduct of business. When the law is poorly enforced and even more when no provision is made for its enforcement, the standard bushel and standard pound have a limited significance. Some dealers may have a reputation for giving good weight and fair measure; others labor under the odium of dishonesty. The pound may be 15 ounces in one store and better than sixteen in another. A bushel of potatoes may be weighed as 60 pounds or measured at fifty. What the merchant gives and the consumer gets is not regulated by law but by precedent and fair or foul intentions.

The mere fact that a county or city official is charged with the enforcement of the weights and measures law stabilizes standards. It puts on weights and measures alike the hall mark of legality. It protects the consumer by holding up the standard before the public quite as much as by affixing seals or haling dishonest peddlers before the courts. It is not wise then to turn to the tables in the hope to read there the real record of any inspector. That is best determined by the value set upon him by the community in which he serves.

Efficiency in public office is appreciated; it is coming to be demanded. The time when an inspector of weights and measures could serve his party so well that he was judged entitled to his salary is gone. The present day desire is for non-partisan service, administered intelligently and with no attempt to serve one part of the people more than another. The curse of partisan politics under which officials were appointed as a reward for services rendered rather than because they could bring credit to their office is past.

I hope that shortly it may be said of the inspectors who are holding office in Indiana that they are public servants instead of party politicians. I do not believe an inspector can do double service, nor do I recognize any system of appointment or political practice that requires more of any inspector than faithful, conscientious work in the enforcement of the Weights and Measures Laws.

If there are such understandings; if there are inspectors holding office today because they have shown ability to serve political bosses, it is inevitable that they change either their viewpoint or their job.

The position of inspector of weights and measures is too important, the service rendered too valuable to be in the slightest

degree dependent on politics in the ignoble sense in which we have come to look upon public service.

#### LABORATORY WORK.

Section II of the Weights and Measures Law provides that the Commissioner of Weights and Measures or his deputies or inspectors at his direction shall correct the standards of the several cities and counties and as often as once in two years compare them with those in his possession.

Owing to the fact that only a few cities' and counties' standards had to be tested but little laboratory work has been done this past year.

Standards from Delaware County, which consisted of 70 test weights, 6 dry measures and 16 liquid measures were tested. 28 of the 70 test weights were found incorrect or 40%, the error ranging from 21 grains light to 436 grains heavy. All of the weights, most of which were cast iron were adjusted and sealed.

Standards from the city of Evansville, consisting of 14 test weights were tested and sealed.

Standards from the city of Terre Haute, consisting of 22 test weights were tested, of which 13 were found incorrect, the error ranging from one gram to 8 grams. Most of these weights were made of brass.

The new standards for Marion County were tested and found correct.

All the working standards of the State Department of Weights and Measures were compared and tested by the State Standards.

Scales from John Chatillon & Sons of New York City and charts from the several computing scale companies were submitted for approval.

Standards from Fairbanks-Morse Company and samples of baskets and boxes were submitted by the New Albany Basket Company and the Indianapolis Basket Company and a number of other weighing and measuring devices were also tested and sealed.

#### CHANGES IN INSPECTORS.

Inspectors were changed in the following cities and counties during the year.

Louis Katzenbach of Terre Haute, Vigo County, tendered his resignation and Maurice Walsh was appointed on January 1st.

George Merz of Delaware County tendered his resignation and Harry Kleinfelder was appointed June 1st.

A County Department of Weights and Measures was established in Marion County and C. O. Dodson was appointed inspector. The Department of Weights and Measures was discontinued in Vermillion County when Pearl Edmonds was not reappointed.

#### EDUCATIONAL WORK.

In addition to the regular routine of educational work as carried on by local inspectors, it is the desire of the State Department to do such special work as possible. During the past year an exhibit showing fraudulent weights and measures, the common illegal practices and also the value of the service was put on at the State House before the National Conference of Charities and Corrections; at the Indianapolis Pure Food Show and at the Street Fair held in connection with Home Coming Week at Seymour.

Respectfully submitted,  
State Commissioner of Weights and Measures.

#### SPECIAL REPORTS BY CITY AND COUNTY INSPECTORS OF WEIGHTS AND MEASURES.

The following tables summarize the work of local inspectors and give in detail the conditions found and corrected by them:

**SUMMARY OF TESTS MADE INCLUDING RE-INSPECTIONS, TOGETHER WITH THE NUMBER OF PROSECUTIONS AND THE AMOUNT OF FINES PAID IN ALL CITIES AND COUNTIES OF INDIANA FOR THE YEAR, 1916.**

Cities and Counties.	Weighting Machines.	Weights.	Dry Measures.	Liquid Measures.	Milk Jars and Cans.	Automatic Pumps and Gauges.	Boxes and Crates.	Yard and Counter Measures.	Gas, Water and Electric Meters.	Glass Graduated Measures.	Oil and Milk Cans.	Articles Re-weighed or Measured.	Total Inspections.	Prosecutions.	Convictions.	Cases Dismissed, Continued or Pending.	Fines.
Indianapolis.....	5,364	7,842	5,805	2,197	2,801	109	256	1,257	82	125	.....	94	22,574	27	15	12	\$180.00
Evansville.....	660	532	521	213	2,801	27	256	8	8	.....	.....	.....	5,225	3	3	.....	70.00
Fort Wayne.....	1,627	.....	1,400	793	.....	80	6,802	19	1	.....	202	.....	10,923	3	3	.....	60.00
Terre Haute.....	595	98	250	188	.....	77	2	6	.....	8	.....	.....	1,225	12	5	7	100.00
South Bend.....	1,480	734	284	6	.....	25	177	98	51	.....	.....	.....	2,580	1	.....	.....	.....
Gary.....	789	978	240	183	129	24	.....	90	.....	.....	12	10	2,825	1	.....	1	.....
Marion.....	1,113	694	71	187	810	289	.....	90	.....	.....	12	.....	3,326	2	.....	.....	.....
LaFayette.....	661	.....	272	239	.....	51	.....	148	.....	.....	.....	.....	1,371	.....	.....	.....	.....
Richmond.....	718	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,718	.....	.....	2	.....
Hammond.....	845	.....	648	371	.....	106	.....	.....	.....	.....	.....	.....	1,970	15	15	.....	300.00
Elkhart.....	404	.....	43	13	8	10	30	.....	.....	.....	.....	.....	5,037	7	7	.....	140.00
Kokomo.....	1,400	134	445	1,550	779	189	474	135	65	.....	.....	1,142	1,026	.....	.....	.....	.....
Mishawaka.....	216	678	175	160	50	30	246	7	8	.....	.....	246	3,535	.....	.....	.....	.....
Columbus.....	580	.....	359	598	1,158	60	196	2	.....	.....	.....	1,989	822	.....	.....	.....	.....
Marion County.....	493	.....	329	.....	.....	124	.....	73	.....	.....	.....	15	4,425	.....	.....	.....	.....
Vigo County.....	1,170	1,727	290	1,041	.....	89	5	67	.....	.....	.....	.....	1,471	.....	.....	.....	.....
Lake County.....	562	625	78	45	.....	52	152	206	.....	.....	121	822	3,782	5	5	.....	91.00
Montgomery County.....	1,165	1,215	301	258	312	52	22	89	.....	.....	.....	253	2,533	3	.....	3	.....
Delaware County.....	749	834	371	342	27	91	22	.....	.....	.....	72	113	2,783	4	4	.....	80.00
Huntington County.....	1,092	.....	360	349	442	448	.....	30	.....	6	10	55	690	.....	.....	.....	.....
Lagrange County.....	436	.....	11	92	.....	105	.....	.....	.....	.....	.....	.....	1,605	.....	.....	.....	.....
State.....	666	547	392	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	22,785	16,638	12,645	8,735	6,503	1,986	8,362	2,235	207	138	497	4,831	80,735	83	57	26	\$1,021.00

Percentage of scales found incorrect.....	20.34	Percentage of milk bottles found incorrect.....	11.35
Percentage of weights found incorrect.....	15.23	Percentage of counter measures found incorrect.....	20.16
Percentage of dry measures found incorrect.....	15.03	Percentage of barrels, baskets and berry boxes found incorrect.....	84.20
Percentage of liquid measures found incorrect.....	14.09	Percentage of gas, water and electric meters found incorrect.....	24.05
Percentage of automatic pumps found incorrect.....	25.76	Percentage of oil and milk cans found incorrect.....	4.06

## SUMMARY OF TESTS MADE IN INDIANAPOLIS.

By Herman Adam, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track							
Hopper							
Wagon	323	6	1			330	2.1
Tipple							
Platform	998	9	12	1		1,020	2.1
Automatic	26					26	
Suspens.	46					46	
Counter	842	1	7	1		851	1.5
Spring	1,129	4	7	93		1,233	8.4
Beam	3					3	
Computing	1,771	26	29	2		1,828	3.1
Cream							
Slot Per	27					27	
Prescrip							
Metric							
Postal							
Total	5,165	46	56	97		5,364	3.7
Avoir. Wt.	7,836			6		7,842	.07
Troy Wt.							
Apoth. Wt.							
Total							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
Dry Meas.	5,637			168		5,805	2.5
Barrels							
Baskets							
Berry Boxes							
Boxes							
Crates							
Liq. Meas.	2,121			76		2,197	3.5
Milk Btls.							
Milk Cans							
Aut. Pumps	98	11				109	10.1
Oil Cans							
Ice Cream Cans							
Gls. Grads.							
Liq. Meas.							
Yard Sticks							
Counter							
Measures	1,250			7		1,257	5.5
Tapes							
Gas. Mtrs.							
Elec. Mtrs.							
Taxi Mtrs.							
Miscellaneous							
Total	9,106	11		251		9,368	2.7

Grand total of inspections made of weights and measures for the year 1916. . . 22,574  
 Number of loads of coal reweighed. . . . . 94

## PROSECUTIONS.

Short Weight—	
Cases filed	27
Cases convicted	15
Cases dismissed	12
Total number of cases	27
Total amount of fines imposed	\$180.00

## SUMMARY OF TESTS MADE IN FORT WAYNE.

By C. B. Tolan, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Adjusted.	Condemned for Repair.	Condemned.	Reinspected.	Total.	Per Cent. Incorrect.
R. R. Track.							
Hopper.	5					5	
Wagon.	62	12	4	1	9	79	21.3
Tipple.							
Platform.	254	38	21	2	23	315	26.9
Automatic.							
Suspens.	83	3	9	4	7	99	16.1
Counter.	223	14	6	3	17	246	9.0
Spring.	116	2	7	4	7	129	10.0
Beam.	13	2				15	13.3
Computing.	526	74	28	6	33	634	17.0
Cream.							
Slot Per.	8			1		9	9.0
Prescrip.							
Metric.							
Postal.							
Total.	1,290	145	75	21	96	1,531	15.7
Avoir. Wt.							
Troy Wt.							
Apoth. Wt.							
Total.							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Adjusted.	Condemned for Repairs.	Condemned.	Reinspected.	Total.	Per Cent.
Dry Meas.	1,369			31		1,400	2.5
Barrels.				37			
Baskets.				6,600		6,600	100.0
Berry Boxes.							
Boxes.							
Crates.	202					202	
Liq. Meas.	766			27		793	3.1
Milk Bottles.							
Milk Cans.							
Aut. Pumps.	82	5	3			80	8.8
Oil Cans.							
Ice Cream Cans.	202					202	
Gls. Grads.							
Lin. Meas.	19					19	
Yard Sticks.							
Counter Measures.							
Tapes.							
Gas Mtrs.							
Elec. Mtrs.							
Taxi Mtrs.							
Miscellaneous.							
Total.	2,640	5	3	6,695		9,343	

Grand total inspections made of weights and measures for the year. . . . . 11,069

## PROSECUTIONS.

Complaint.	Sec. of Law.	Defendant.	Occupation.	Results.
1 Short weight . . .	8	Ned Johns. . .	Peddler. . . . .	\$20.00
2 Short weight . . .	8	J. Lemgenan. .	Peddler. . . . .	20.00
3 Short weight . . .	8	W. McPartland. . . . .	Peddler. . . . .	20.00
Total amount of		finer imposed . . . . .		\$60.00

## SUMMARY OF TESTS MADE IN EVANSVILLE.

By J. C. Wallenmeyer, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track . . . . .	5			3		8	37.7
Hopper . . . . .	6			3		9	33.3
Wagon . . . . .	59			7		66	10.6
Tipple . . . . .							
Platform . . . . .	102			10		112	9.8
Automatic . . . . .							
Suspens. . . . .							
Counter . . . . .	183			13		196	6.6
Spring . . . . .	34			8		42	19.0
Beam . . . . .	6					6	
Computing . . . . .	143			5		148	3.3
Cream . . . . .							
Slot Per. . . . .	50					50	
Prescrip. . . . .							
Metric . . . . .							
Postal . . . . .	23					23	
Total . . . . .	611			49		660	7.4
Avoir Wt. . . . .	499			33		532	6.3
Troy Wt. . . . .							
Apoth. Wt. . . . .							
Total . . . . .							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas. . . . .	485			36		521	6.7
Barrels . . . . .							
Baskets . . . . .	256					256	
Berry Boxes . . . . .							
Boxes . . . . .							
Crates . . . . .							
Liq. Meas. . . . .	211			2		213	9.0
Milk Bottles . . . . .	2,636			165		2,801	5.8
Milk Cans . . . . .							
Aut. Pumps . . . . .	18			9		27	33.3
Oil Cans . . . . .							
Ice Cream Cans . . . . .							
Gls. Grads . . . . .	7					7	
Lin. Meas. . . . .							
Yard Sticks . . . . .	5					5	
Metric Measures . . . . .	118					118	
Tapes . . . . .	3					3	
Gas Mtrs. . . . .	51			3		54	5.5
Elec. Mtrs. . . . .	1			1		2	50.0
Water Mtrs. . . . .	26					26	
Miscell. . . . .							
Total . . . . .	3,817			216		4,033	

Grand total of inspections made of weights and measures for the year. . . . . 5,225

## PROSECUTIONS.

Complaint.	Sec. of Law.	Defendant.	Occupation.	Results.
1 Short weight. . . . .	8	Geo. Price . . . . .	Peddler . . . . .	\$35.00
2 Short weight. . . . .	8	F. Colgate . . . . .	Peddler . . . . .	15.00
3 Short weight. . . . .	8	F. Colgate . . . . .	Peddler . . . . .	20.00
Total amount of fines imposed.				\$70.00



## SUMMARY OF TESTS MADE IN TERRE HAUTE.

By A. E. Mogle, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track.....							
Hopper.....	1					1	
Wagon.....	34	2	11			47	27.6
Tipple.....							
Platform.....	54	1	28			78	37.0
Automatic.....							
Suspens.....	13	1	4	1		19	31.5
Counter.....	24		16	10		50	52.0
Spring.....	125	1	3	75		204	37.2
Beam.....	2		1	1		4	50.0
Computing.....	84	2	94	2		182	54.8
Cream.....							
Slot Per.....	1					1	
Prescrip.....	1					1	
Metric.....							
Postal.....							
Total.....	339	7	157	92		595	43.2
Avoir. Wt.....	46	7	49	3		98	60.2
Troy Wt.....							
Apoth. Wt.....							
Total.....	46	7	49	3		98	60.2

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas.....	139			111		250	44.4
Barrels.....							
Baskets.....							
Berry Boxes.....							
Boxes.....							
Crates.....				2		2	100.0
Liq. Meas.....	117			65		182	34.2
Milk Bottles.....							
Milk Cans.....							
Aut. Pumps.....	57	2	18			77	26.9
Oil Cans.....							
Ice Cream Cans.....							
Gls. Grads.....	6			2		8	25.0
Lin. Meas.....							
Yard Sticks.....							
Counter.....							
Measures.....				6		6	100.0
Tapes.....							
Gas Mtrs.....	1						
Elec. Mtrs.....							
Taxi Mtrs.....							
Oyster Buckets.....	6					6	
Miscellaneous.....							
Total.....	326	2	18	186		532	38.7

Grand total of inspections of weights and measures for the year..... 1,225  
 Articles reweighed or measures, correct..... 14  
 Articles reweighed or measures, incorrect..... 1  
 Total..... 15

## PROSECUTIONS.

Complaint.	Sec. of Law.	Defendant.	Occupation.	Results.
1 Selling coal by baskets.....	Rule 26 .....	Chas. Farris..	Basket Coal ..	Dismissed.
2 Selling coal by basket.....	Rule 26 .....	H. Large .....	Basket Coal...	Dismissed.
3 Selling coal by basket.....	Rule 26 .....	Mathew May ..	Basket coal...	Dismissed.
4 Selling coal by basket.....	Rule 26 .....	T. Sutherland.	Basket coal...	Dismissed.
5 Short weight....	Sec. 10 .....	B. Thompson ..	Grocer .....	Convicted but appealed.
6 Short weight....	Sec. 10 .....	B. Thompson ..	Grocer .....	Convicted but appealed.
7 Short weight....	Sec. 10 .....	Chas. Ehrman ..	Meat Market ..	Not guilty.
8 Selling coal by basket.....	Sec. 10 .....	H. Large .....	Basket coal...	Guilty.
9 Selling coal by basket.....	Sec. 10 .....	H. Large .....	Basket coal...	Guilty.
10 Selling coal by basket.....	Sec. 10 .....	H. Large .....	Basket coal...	Guilty.
11 Selling coal by basket.....	Sec. 10 .....	H. Large .....	Basket coal...	Guilty.
12 Selling coal by basket.....	Sec. 10 .....	Geo. Huey .....	Basket coal...	Guilty.

## SUMMARY OF TESTS MADE IN SOUTH BEND.

By Byron B. Miller, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track.....	2					2	
Hopper.....	9	1	2			12	25.0
Wagon.....							
Tipple.....	67	8	4	2		81	17.8
Platform.....	1					1	
Automatic.....	214	25	15	11		265	19.2
Suspens.....	327	9	9	39		384	14.8
Counter.....							
Spring.....	585	114	35	1		735	23.4
Beam.....							
Computing.....							
Cream.....							
Slot Per.....							
Prescrip.....							
Metric.....							
Postal.....							
Total.....	1,205	157	65	53		1,480	19.1
Avoir. Wt.....	716	14		4		734	2.4
Troy Wt.....							
Apoth. Wt.....							
Total.....							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Scaled.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas. ....	242			42		284	14.6
Barrels. ....							
Baskets. ....							
Berry Boxes. ....							
Boxes. ....							
Crates. ....							
Liq. Meas. ....	4			2		6	33.0
Milk Bottles. ....							
Milk Cans. ....							
Aut. Pumps. ....	15	7	3			25	40.0
Oil Cans. ....							
Ice Cream Cans. ....							
Gls. Grads. ....							
Lin. Meas. ....							
Yard Sticks. ....							
Counter Measure. ....							
Tapes. ....							
Gas Mtrs. ....	51					51	
Elec. Mtrs. ....							
Taxi Mtrs. ....							
Miscellaneous. ....							
Total. ....	312	7	3	44		366	10.4

Grand total of inspections made of weights and measures for the year 1916. . . . . 2,580

Loads of coal reweighed, correct. . . . . 8

Loads of coal reweighed, incorrect. . . . . 2

Total. . . . . 10

Mr. Miller reports one prosecution, case is pending.

## SUMMARY OF TESTS MADE IN GARY.

By C. M. Renollett, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track. ....							
Hopper. ....							
Wagon. ....	19	1	8			28	32.2
Tipple. ....							
Platform. ....	122	9	26			157	22.2
Automatic. ....							
Suspens. ....	36	16	11	1		64	43.7
Counter. ....	54	10	7	2		73	26.0
Spring. ....	15	2	35	18		70	78.7
Beam. ....	5		4			9	44.4
Computing. ....	251	62	74	1		388	35.5
Cream. ....							
Slot Per. ....							
Prescrip. ....							
Metric. ....							
Postal. ....							
Total. ....	502	100	165	22		789	36.3
Avoir. Wt. ....	775	51	141	11		978	20.3
Troy Wt. ....							
Apoth. Wt. ....							
Total. ....	775	51	141	11		978	20.3

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas. ....	190		7	43		240	20.6
Barrels. ....							
Baskets. ....	31					31	
Berry Boxes. ....	60					60	
Boxes. ....	61					61	
Crates. ....	15					15	
Liq. Meas. ....	130		12	41		183	29.5
Milk Bottles. ....	129					129	
Milk Cans. ....	10			2		12	16.6
Aut. Pumps. ....	12		12			24	50.0
Oil Cans. ....							
Ice Cream Cans. ....							
Gls. Grads. ....							
Lln. Meas. ....							
Yard Sticks. ....							
Counter Measures. ....	68			22		90	24.4
Tapes. ....	6			2		8	33.3
Gas Mtrs. ....							
Elec. Mtrs. ....							
Taxi Mtrs. ....							
Miscellaneous. ....							
Total. ....	712		31	110		853	

Grand total of inspections for the year. .... 2,620  
 Articles reweighed or measured, correct. .... 124  
 Articles reweighed or measured, incorrect. .... 13  
 Total. .... 137

## PROSECUTIONS.

Complaint.	Sec. of Law.	Defendant.	Occupation.	Result.
1 False Measure..	8	B. Wembeck..	Peddler. ....	Released.

## SUMMARY OF TESTS MADE IN HAMMOND.

By F. J. O'Rourke, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track . . . . .							
Hopper . . . . .							
Wagon . . . . .	30	4		1	30	35	14.2
Tipple . . . . .							
Platform . . . . .	75	2	1	2	75	80	6.3
Automatic . . . . .							
Suspens. . . . .							
Counter . . . . .	80	20	4	2	80	106	24.5
Spring . . . . .	20		2	1		23	13.0
Beam . . . . .							
Computing . . . . .	140	2	5	2	140	149	6.0
Cream . . . . .							
Slot Per. . . . .							
Prescrip. . . . .							
Metric . . . . .							
Postal . . . . .							
Total . . . . .	345	28	12	8	325	393	12.2
Avoir. Wt. . . . .							
Troy . . . . .							
Apoth. Wt. . . . .							
Total . . . . .							

Grand total of inspections made including reinspections for the year. . . . . 718  
 Mr. O'Rourke reports no prosecutions.

## SUMMARY OF TESTS MADE IN MARION.

By Otis Weesner, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track . . . . .	3	1				4	25.0
Hopper . . . . .	2				2	2	
Wagon . . . . .	135	1		1		137	1.4
Tipple . . . . .							
Platform . . . . .	215	4		11		230	6.9
Automatic . . . . .							
Suspens. . . . .							
Counter . . . . .	129	1				130	76
Spring . . . . .	48	1	5			54	11.1
Beam . . . . .	31	1	1			33	6.0
Computing . . . . .	508	6	9			523	2.8
Cream . . . . .							
Slot . . . . .							
Prescrip. . . . .							
Metric . . . . .							
Postal . . . . .							
Total . . . . .	1,071	15	15	12	2	1,113	3.7
Avoir. Wt. . . . .	663			31		694	4.4
Troy Wt. . . . .							
Apoth. Wt. . . . .							
Total . . . . .							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas. ....	57			14		71	24.5
Barrels .....							
Baskets .....							
Berry Boxes ..							
Boxes .....							
Crates .....							
Liq. Meas. ....	187					187	
Milk Bottles ..	810					810	
Milk Cans .....							
Aut. Pumps .....	289					289	
Oil Cans .....	72					72	
Ice Cream Cans.							
Gls. Grads. ....							
Lin. Meas. ....							
Yard Sticks .....	86			4		90	4.4
Counter .....							
Measures .....							
Tapes .....							
Gas Mtrs. ....							
Elec. Mtrs. ....							
Taxi Mtrs. ....							
Miscellaneous ..							
Total .....	1,501			18		1,519	

Grand total of inspections made of weights and measures for the year 1916 ... 3,326

Mr. Weesner reports no prosecutions for the year.

## SUMMARY OF TESTS MADE IN RICHMOND.

By G. A. McKinley, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track .....							
Hopper .....							
Wagon .....	30	4	5		5	39	23.7
Tipple .....							
Platform .....	192	14	11		8	217	11.5
Automatic .....							
Suspens. ....	30	5				35	14.2
Counter .....	246	5	12		12	263	6.5
Spring .....	30			8		39	21.3
Beam .....							
Computing .....	208	5	9		6	222	6.3
Cream .....							
Slot Per. ....							
Prescrip. ....							
Metric .....							
Postal .....							
Total .....	736	33	37	8	31	814	9.5
Avoir. Wt. ....							
Troy Wt. ....							
Apoth. Wt. ....							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas. ....	640			8		648	1.2
Barrels. ....							
Baskets. ....							
Berry Boxes. ....							
Boxes. ....							
Crates. ....							
Liq. Meas. ....	357			14		371	3.6
Milk Bottles. ....							
Milk Cans. ....							
Aut. Pumps. ....	83	23				106	21.6
Oil Cans. ....							
Ice Cream Cans. ....							
Gls. Grads. ....							
Lin. Meas. ....							
Yard Sticks. ....							
Counter Meas. ....							
Tapes. ....							
Gas Mtrs. ....							
Elec. Mtrs. ....							
Taxi Mtrs. ....							
Miscellaneous. ....							
Total. ....	1,080	23		22		1,125	4.0

Grand total inspection of weights and measures including reinspections. .... 1,970

## PROSECUTIONS.

Complaint.	Sec. of Law.	Defendant.	Occupation.	Result.
1 Ice Cream sam- ples. ....	8	H. Townsend..	Confectioner..	\$20.00
2 Ice cream sam- ples. ....	8	Clem Thistle- waite .....	Druggist. ....	20.00
3 Ice cream sam- ples. ....	8	Clem Thistle- waite .....	Druggist .....	20.00
4 Meat Samples. ....	8	Henry Nun- gesser .....	Butcher. ....	20.00
5 Meat Samples. ....	8	John Maher. ....	Butcher. ....	20.00
6 Short Weight. ....	8	S. C. Ogden. ....	Ice man. ....	20.00
7 Short Weight. ....	8	Glen S. Freg- lawn. ....	5 & 10 Store. ..	20.00
8 Short Weight. ....	8	A. Stolle. ....	Butcher. ....	20.00
9 Short Weight. ....	8	Otto Rettig. ....	Manager Ice Plant. ....	20.00
10 Short Weight. ....	8	R. Sherman. ....	Grocer. ....	20.00
11 Short Measure. ....	8	C. Butler. ....	Oil Peddler. ....	20.00
12 Rotten Potatoes. ....	8	C. C. Shafer. ....	Grocer. ....	20.00
13 Meat Samples. ....	8	Henry Nun- gesser .....	Butcher. ....	20.00
14 Meat Samples. ....	8	Frank Silber- blen. ....	Butcher. ....	20.00
15 Short Weight. ....	8	H. E. Butter- dick. ....	Coal Dealer. ....	20.00
Total amount of fines imposed. ....				\$300.00

## SUMMARY OF TESTS MADE IN ELKHART.

By J. C. Stephens, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track . . . . .							
Hopper . . . . .	2					2	
Wagon . . . . .	15		1		1	16	6.2
Tipple . . . . .							
Platform . . . . .	63	5				68	7.3
Automatic . . . . .							
Suspens. . . . .							
Counter . . . . .	60		4	3	2	67	10.4
Spring . . . . .	29			5		34	14.7
Beam . . . . .							
Computing . . . . .	179	14	12		6	205	12.3
Cream . . . . .							
Slot Per. . . . .	3					3	
Prescrip. . . . .							
Metric . . . . .							
Postal . . . . .							
Total . . . . .	351	19	17	8	9	395	11.1
Avoir. Wt. . . . .							
Troy Wt. . . . .							
Apoth. Wt. . . . .							
Total . . . . .							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas. . . . .	42			1		43	2.5
Barrels . . . . .							
Baskets . . . . .							
Berry Boxes . . . . .							
Boxes . . . . .							
Crates . . . . .	30					30	
Liq. Meas. . . . .	12			1		13	7.6
Milk Bottles . . . . .	8					8	
Milk Cans . . . . .							
Aut. Pumps . . . . .	10					10	
Oil Cans . . . . .							
Ice Cream Cans . . . . .							
Gls. Grads. . . . .							
Lin. Meas. . . . .							
Yard Sticks . . . . .							
Counter Meas. . . . .							
Tapes . . . . .							
Gas Mtrs. . . . .							
Elec. Mtrs. . . . .							
Taxi Mtrs. . . . .							
Miscellaneous . . . . .							
Total . . . . .	102			2		104	1.9

Grand total of inspections made of weights and measures for the year including re-inspections. . . . . 508

Articles reweighed or measured, correct . . . . . 79

Articles reweighed or measured, incorrect . . . . . 13

Total . . . . . 92

Mr. Stephens reports no prosecutions.



## SUMMARY OF TESTS MADE IN LAFAYETTE.

By Frank Fowler, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track . . . . .							
Hopper . . . . .							
Wagon . . . . .	29		3			32	9.3
Tipple . . . . .							
Platform . . . . .	109		5	2		116	6.2
Automatic . . . . .							
Suspens. . . . .							
Counter . . . . .	181		4	3		188	3.7
Spring . . . . .	180		8			188	4.3
Beam . . . . .							
Computing . . . . .	118		8			126	6.3
Cream . . . . .							
Slot Per . . . . .	8		3			11	27.2
Prescrip. . . . .							
Metric . . . . .							
Postal . . . . .							
Total . . . . .	625		31	5		661	5.4
Avoir. Wt. . . . .							
Troy Wt. . . . .							
Apoth. Wt. . . . .							
Total . . . . .							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas. . . . .	239			3		242	1.2
Barrels . . . . .							
Baskets . . . . .							
Berry Boxes . . . . .							
Boxes . . . . .							
Crates . . . . .							
Liq. Meas. . . . .	223			16		239	6.5
Milk Bottles . . . . .							
Milk Cans . . . . .							
Aut. Pumps . . . . .	46		5			51	9.8
Oil Cans . . . . .							
Ice Cream Cans . . . . .							
Gls. Grads. . . . .							
Liq. Meas. . . . .							
Yard Sticks . . . . .							
Counter Meas. . . . .	144			4		148	2.7
Tapes . . . . .							
Gas Mtrs . . . . .							
Elec. Mtrs . . . . .							
Taxi Mtrs . . . . .							
Miscellaneous . . . . .							
Total . . . . .	652		5	23		680	4.1

Grant total of inspections made of weights and measures for the year 1916. . . . . 341

## PROSECUTIONS.

Complaint.	Ser. of Law.	Defendant.	Occupation.	Results.
1 Short Weight. . . . .	8	Wm. Fisher. . . . .	Hay Dealer. . . . .	Pending.
2 Short Weight. . . . .	Ordinance. . . . .	F. C. Martin. . . . .	Feed & Coal. . . . .	Pending.

## SUMMARY OF TESTS MADE IN KOKOMO.

By C. S. Williams, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track.....							
Hopper.....							
Wagon.....	25		19		50	44	43.4
Tipple.....							
Platform.....	110		15		123	125	12.0
Automatic.....							
Suspens.....							
Counter.....	128		5	4	128	137	6.5
Spring.....	138		17	61	122	216	26.3
Beam.....							
Computing.....	177		30		212	207	14.3
Cream.....							
Slot Per.....	19		12		15	31	38.5
Prescrip.....							
Metric.....							
Postal.....							
Total.....	597		98	65	650	750	21.7
Avoir. Wt.....							
Troy Wt.....							
Apoth. Wt.....							
Total.....							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total	Per Cent.
Dry Meas.....	229			7	209	236	2.9
Barrels.....							
Baskets.....	8					8	
Berry Boxes.....				288	175	288	100.0
Boxes.....							
Crates.....							
Liq. Meas.....	1,366		3	16	169	1,385	1.3
Milk Bottles.....	582			47	150	629	7.5
Milk Cans.....							
Aut. Pumps.....	62		16		111	78	20.5
Oil Cans.....							
Ice Cream Cans.....							
Gls Grads.....							
Lin. Meas.....							
Yard Sticks.....	103			3	29	106	2.8
Counter Meas.....							
Tapes.....							
Gas Mtrs.....	8		9	6	2	23	69.0
Elec. Mtrs.....	19	8		2	2	29	34.8
Water Mtrs.....	5	4				9	44.4
Miscellaneous.....							
Total.....	2,382	12	18	369	847	2,791	14.2

Grand total of inspections made of weights and measures including reinspections for the year..... 5,048  
 Articles reweighed or measured, correct..... 848  
 Articles reweighed or measured, incorrect..... 294  
 Total..... 1,142

## PROSECUTIONS.

Complaint.	Sec. of Law.	Defendant.	Occupation.	Result.
1 False Scale.....	8	James A n t- robes.....	Junk.....	\$20. 00
2 False Scale.....	8	Thomas Gal- adv.....	Junk.....	20. 00
3 False Scale.....	8	Jess Simpson.	Junk.....	20. 00
4 Short Weight.....	8	P. B. Heaton.	Ice Dealer.....	20. 00
5 Short Weight.....	8	D. C. Dorland.	Peanuts.....	20. 00
6 Short Weight.....	8	A. H. Dodge..	Creamery.....	20. 00
7 Short Weight.....	8	R. Furter.....	Commission..	20. 00
Total amount o f fines imposed.				\$140. 00

## SUMMARY OF TESTS MADE IN COLUMBUS.

By G. O. McClain, Inspector, for the Year 1916.

Type of Scale.	Correct and Scaled.	Ad- justed.	Con- demned for Repair.	Con- demned.	Rein- spected.	Total.	Per Cent. In- correct.
R. R. Track.....	2					2	
Hopper.....	1					1	
Wagon.....	41	2	5	10		58	29.3
Tipple.....							
Platform.....	143	3	12	2		160	10.6
Automatic.....							
Suspens.....	3					3	
Counter.....	89	4		1		94	5.3
Spring.....	82	3		25		110	25.4
Beam.....	3					3	
Computing.....	130	5	2	1		138	6.1
Cream.....							
Slot Per.....	10			1		11	9.9
Prescrip.....							
Metric.....							
Postal.....							
Total.....	504	17	19	40		580	13.1
Avoir. Wt.....	633	15		30		678	6.6
Troy Wt.....							
Apoth. Wt.....							
Total.....							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas. ....	336			23		359	6.4
Barrels. ....							
Baskets. ....	170			9		179	5.02
Berry Boxes. ....							
Boxes. ....	6					6	
Crates. ....	11					11	
Liq. Meas. ....	476			32		508	6.4
Milk Bottles. ....	987			15		1,002	1.5
Milk Cans. ....							
Aut. Pumps. ....	55	4		1		60	8.2
Oil Cans. ....							
Ice Cream Cans. ....							
Gls. Grads. ....							
Lin. Meas. ....							
Yard Sticks. ....							
Counter Meas. ....	2					2	
Tapes. ....							
Gas Mtrs. ....							
Elec. Mtrs. ....							
Taxi Mtrs. ....							
Mis. Bottles. ....	100			51		151	33.3
Total. ....	2,143	4		131		2,278	

Grand total of inspections made of scales, weights and measures for the year 1916 3,536

Articles reweighed or measured, correct. .... 1,980

Articles reweighed or measured, incorrect. .... 9

Total. .... 1,989

Mr. McClain reports no prosecutions.

## SUMMARY OF TESTS MADE IN MISHAWAKA.

By H. E. Strubbe, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track. ....							
Hopper. ....	1	1			1	2	50.0
Wagon. ....	8	2		1	30	11	27.2
Tipple. ....							
Platform. ....	21	3			18	24	12.5
Automatic. ....							
Suspens. ....	1					1	
Counter. ....	12	7				19	26.8
Spring. ....	34			23		57	42.1
Beam. ....							
Computing. ....	81	11	8	2	240	102	20.5
Cream. ....							
Slot Per. ....							
Prescrip. ....							
Metric. ....							
Postal. ....							
Total. ....	158	24	8	28	289	216	26.8
Avoir. Wt. ....	128	6				134	4.4
Troy Wt. ....							
Apoth. Wt. ....							
Total. ....							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas. ....	171			4		175	2.3
Barrels. ....							
Baskets. ....							
Berry Boxes. ....							
Boxes. ....	224					224	
Crates. ....	22					22	
Liq. Meas. ....	160					160	
Milk Bottles. ....	50					50	
Milk Cans. ....							
Aut. Pumps. ....	30					30	
Oil Cans. ....							
Ice Cream Cans. ....							
Gls. Grads. ....							
Lin. Meas. ....							
Yard Sticks. ....							
Counter Meas. ....	7						
Tapes. ....							
Gas Mtrs. ....	2					2	
Elec. Mtrs. ....	2					2	
Water Mtrs. ....	4					4	
Miscellaneous. ....							
Total. ....	672			4		675	.05

Grand total of inspections of weights and measures made including reinspec-  
tions for the year. .... 1,026

Articles reweighed or measured found correct. .... 193

Articles reweighed or measured found incorrect. .... 53

Total. .... 246

Mr. Strubbe reports no prosecutions.

## SUMMARY OF TESTS MADE IN MARION COUNTY.

By C. O. Dodson, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track. ....							
Hopper. ....							
Wagon. ....	22	15	5	1		43	46.5
Tipple. ....							
Platform. ....	49	31	3	2	2	85	44.7
Automatic. ....							
Suspens. ....							
Counter. ....	32	12	8	2	5	54	40.7
Spring. ....	26	9	6	8	6	49	46.9
Beam. ....	3					3	
Computing. ....	143	58	26	11	10	238	38.8
Cream. ....							
Slot Per. ....							
Prescrip. ....							
Metric. ....							
Postal. ....							
Total. ....	275	125	48	24	23	472	41.7
Avoir. Wt. ....							
Troy Wt. ....							
Apoth. Wt. ....							
Total. ....							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas. ....	293	30		6		329	12.0
Barrels. ....							
Baskets. ....							
Berry Boxes. ....							
Boxes. ....							
Crates. ....							
Liq. Meas. ....							
Milk Bottles. ....							
Milk Cans. ....							
Aut. Pumps. ....							
Oil Cans. ....							
Ice Cream Cans. ....							
Gls Grads. ....							
Lin. Meas. ....							
Yard Sticks. ....							
Counter Meas. ....							
Tapes. ....							
Gas Mtrs. ....							
Elec. Mtrs. ....							
Taxi Mtrs. ....							
Miscellaneous. ....							
Total. ....	293	30		6		329	12.0

Grand total of inspections made including reinspections from September 1, 1915 to December 1, 1916. 824  
Mr. Dodson reports no prosecutions.

## SUMMARY OF TESTS MADE IN LAKE COUNTY.

By J. A. Umpleby, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track. ....							
Hopper. ....							
Wagon. ....	30	1	5			36	16.6
Tipple. ....							
Platform. ....	87	1	29	2		119	26.9
Automatic. ....							
Suspens. ....	14	2	3			19	31.6
Counter. ....	62	2	4	4		72	13.7
Spring. ....	25	2	9	9		45	44.4
Beam. ....							
Computing. ....	215	12	35	7		269	20.0
Cream. ....							
Slot Per. ....	1					1	
Prescrip. ....							
Me'ric. ....							
Postal. ....							
Total. ....	434	20	85	23		562	22.7
Avoir. Wt. ....	528	8	80	9		625	15.5
Troy Wt. ....							
Apoth Wt. ....							
Total. ....							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas. ....	54			24		78	34.7
Barrels. ....							
Baskets. ....							
Berry Boxes. ....							
Boxes. ....	5					5	
Crates. ....							
Liq. Meas. ....	17			28		45	62.2
Milk Bottles. ....							
Milk Cans. ....							
Aut. Pumps. ....	73	4	12			89	17.9
Oil Cans. ....							
Ice Cream Cans. ....							
Gls Grads. ....							
Lin. Meas. ....							
Yard Sticks. ....							
Counter Meas. ....	63			3		66	4.6
Tapes. ....	1					1	
Gas Mtrs. ....							
Elec. Mtrs. ....							
Taxi Mtrs. ....							
Miscellaneous. ....							
Total. ....	213	4	12	55		284	24.3

Grand total of inspections of weights and measures for the year 1916. . . . . 1,471  
 Mr. Umpleby reports no prosecutions.

## SUMMARY OF TESTS MADE IN VIGO COUNTY.

By Maurice Walsh, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track. ....	19	1			1	20	5.0
Hopper. ....	25	2	8		4	35	28.5
Wagon. ....	114	15	60		34	189	39.6
Tipple. ....							
Platform. ....	129	37	13	3	91	182	28.0
Automatic. ....							
Suspens. ....	41	10		4		55	25.4
Counter. ....	160	35	20	10	120	225	28.0
Spring. ....	97	14	6	25	61	142	31.6
Beam. ....							
Computing. ....	234	34	15		142	283	17.3
Cream. ....	1				1	1	
Slot Per. ....	2	1	2		3	5	60.0
Prescrip. ....	24		1		13	25	4.0
Metric. ....	4		1		2	7	42.8
Postal. ....	1					1	
Total. ....	851	150	127	42	490	1,170	27.2
Avoir. Wt. ....	1,630	47	13	37	845	1,727	5.6
Troy Wt. ....							
Apoth. Wt. ....							
Total. ....	1,630	47	13	37	845	1,727	5.6

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas. ....	192			98	192	290	51.5
Barrels. ....							
Baskets. ....							
Berry Boxes. ....							
Boxes. ....							
Crates. ....							
Liq. Meas. ....	995			46	995	1,041	4.5
Milk Bottles. ....							
Milk Cans. ....							
Aut. Pump. ....	92	21	10	1	123	124	25.8
Oil Cans. ....							
Ice Cream Cans. ....							
Gls. Grads. ....							
Lin. Meas. ....	1				1	1	
Yard Sticks. ....	21			5	21	26	19.0
Counter Meas. ....	41			4	41	45	9.1
Tapes. ....	1				1	1	
Gas Mtrs. ....							
Elec. Mtrs. ....							
Taxi. Mtrs. ....							
Miscellaneous. ....							
Total. ....	1,343	21	10	154	1,374	1,528	12.0

The reinspections are included in the number that are sealed. 15 sacks of flour were found incorrect.

Grand total of inspections made ..... 4,425

Mr. Walsh reports no prosecutions.

## SUMMARY OF TESTS MADE IN MONTGOMERY COUNTY.

By John F. Sullivan, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track. ....							
Hopper. ....							
Wagon. ....	106	33	23	5		167	30.5
Tipple. ....							
Platform. ....	180	27	11	1		219	18.5
Automatic. ....							
Suspens. ....	132	4	9	10		155	14.8
Counter. ....	70	5	3			78	10.6
Spring. ....	91	3	3	2		99	8.0
Beam. ....	106	18	14	2		139	24.4
Computing. ....	233	57	5	1		295	21.4
Cream. ....							
Slot Per. ....	3	7	3			13	76.8
Prescrip. ....							
Metric. ....							
Postal. ....							
Total. ....	921	154	71	19		1,165	20.9
Avoir. Wt. ....	1,188	19		8		1,215	2.2
Troy Wt. ....							
Apoth. Wt. ....							
Total. ....							



## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Adjusted.	Condemned for Repairs.	Condemned.	Inspected.	Total.	Per Cent.
Dry Meas. ....	301					301	
Barrels. ....							
Baskets. ....	96					96	
Berry Boxes. ....	56					56	
Boxes. ....	10					10	
Crates. ....							
Liq. Meas. ....	356			2		258	.05
Milk Bottles. ....	312					312	
Milk Cans. ....	42					42	
Aut. Pumps. ....	26	23	3			52	50.0
Oil Cans. ....	72					72	
Ice Cream Cans. ....	7					7	
Gls. Grads. ....							
Lin. Meas. ....							
Yard Sticks. ....	206					206	
Counter Meas. ....							
Tapes. ....							
Gas Mtrs. ....							
Elec. Mtrs. ....							
Taxi. Mtrs. ....							
Miscellaneous. ....							
Total. ....	1,384	23	3	2		1,412	10.2

Grand total of inspections made of weights and measures for the year. .... 3,782  
 Articles reweighed or measured, correct. .... 762  
 Articles reweighed or measured, incorrect. .... 60  
 Total. .... 822

## PROSECUTIONS.

Complaint.	Sec. of Law.	Defendant.	Occupation.	Result.
1 Short Weight. ....	8	Goldsten. ....	Junk. ....	\$20.00
2 Short Weight. ....	8	Mayfield. ....	Junk. ....	20.00
3 Short Weight. ....	8	Redmond. ....	Junk. ....	20.00
4 Short Weight. ....	8	Hunt. ....	Coal Dealer. ....	11.00
Total fines imposed. ....				\$91.00

## SUMMARY OF TESTS MADE IN DELAWARE COUNTY.

By H. A. Kleinfelder, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track . . . . .							
Hopper . . . . .	1	1				2	50.0
Wagon . . . . .	32	4	9	2	3	47	31.8
Tipple . . . . .							
Platform . . . . .	59	5	9	1	7	74	20.2
Automatic . . . . .							
Suspens. . . . .	3					3	
Counter . . . . .	72	5	11	3	8	91	20.8
Spring . . . . .	41	1		22		64	35.9
Beam . . . . .	33			1		34	3.3
Computing . . . . .	267	20	73	24	31	384	30.4
Cream . . . . .							
Slot Per . . . . .			1			1	
Prescrip. . . . .							
Metric . . . . .							
Postal . . . . .							
Total . . . . .	508	36	103	53	49	700	26.8
Avoir. Wt. . . . .	772	31	18	13		834	7.4
Troy Wt. . . . .							
Apoth. . . . .							
Total . . . . .							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas. . . . .	284			87		371	23.4
Barrels . . . . .	4					4	
Baskets . . . . .	8			1		9	11.1
Berry Boxes . . . . .	4			2		6	33.3
Boxes . . . . .							
Crates . . . . .	3					3	
Liq. Meas. . . . .	285	8	4	45		342	16.6
Milk Bottles . . . . .	27					27	
Milk Cans . . . . .							
Aut. Pumps . . . . .	72	13	6			91	20.8
Oil Cans . . . . .	7			1		8	12.2
Ice Cream Cans . . . . .							
Gls Grads . . . . .							
Lin. Meas. . . . .				1		1	2.4
Yard Sticks . . . . .	40			7		47	14.8
Counter Meas. . . . .	40						
Tapes . . . . .							
Gas. Mtrs. . . . .							
Elec. Mtrs. . . . .							
Taxi Mtrs. . . . .							
Miscellaneous . . . . .							
Total . . . . .	514	21	11	148		662	27.2

Grand total of inspections of weights and measures including reinspections for the year 1916. . . . . 2,533

Articles reweighed or measured found correct . . . . . 126

Articles reweighed or measured found incorrect . . . . . 127

Total . . . . . 253

## PROSECUTIONS.

Complaint.	Sec. of Law.	Defendant.	Occupation.	Result.
1 Short Weight...	8	Max Zeigler...	Junk.....	Dismissed.
2 False Scale.....	8	S. W. Sans....	Poultry.....	Pending.
3 Short weight Potatoes.....	8	D. McKarken.	Commission Merchant...	Pending.

## SUMMARY OF TESTS MADE IN HUNTINGTON COUNTY.

By D. S. Austin, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad- justed.	Con- demned for Repair.	Con- demned.	Rein- spected.	Total.	Per Cent. In- correct.
R. R. Track.....							
Hopper.....	13			2		15	13.3
Wagon.....	112	19	18	2	74	155	25.1
Tipple.....							
Platform.....	124	12	8	16	18	160	22.5
Automatic.....							
Suspens.....	35			7		42	16.6
Counter.....	60	6		18	20	84	28.5
Spring.....	168			57		225	25.3
Beam.....	39			5		44	11.3
Computing.....	192	8		10	49	210	8.5
Cream.....							
Slot Per.....							
Prescrip.....							
Metric.....							
Postal.....							
Total.....	743	45	26	117	161	931	20.2
Avoir. Wt.....							
Troy Wt.....							
Apoth. Wt.....							
Total.....							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas. ....	285			75		360	20.8
Barrels. ....							
Baskets. ....							
Berry Boxes. ....							
Boxes. ....							
Crates. ....							
Liq. Meas. ....	280			69		349	19.7
Milk Bottles. ....	357			85		442	19.0
Milk Cans. ....	57			15		72	21.6
Aut. Pumps. ....	194	25	31	12	186	262	25.5
Oil Cans. ....							
Ice Cream Cans. ....							
Gls. Grads. ....							
Lin. Meas. ....							
Yard Sticks. ....							
Counter Meas. ....							
Tapes. ....							
Gas Mtrs. ....							
Elec. Mtrs. ....							
Taxi Mtrs. ....							
Miscellaneous. ....							
Total. ....	1,173	25	31	256	186	1,485	

Grand total of inspections made of weights and measures including reinspections for the year. .... 2,763

Articles reweighed or measured, correct. .... 74

Articles reweighed or measured, incorrect. .... 39

Total. .... 113

## PROSECUTIONS.

Complaint.	Sec. of law.	Defendant.	Occupation.	Result.
1 Short Weight. . .	8	E. E. Class. . .	Farmer. . . . .	\$20.00
2 Short Weight. . .	8	C. Steffel. . . .	Butcher. . . . .	20.00
3 Short Weight. . .	8	Rees & Co. . . .	Grocer. . . . .	20.00
4 Short Weight. . .	8	D. Arglemeyer	Grocer. . . . .	20.00
Total amount		of fines imposed		\$80.00

## SUMMARY OF TESTS MADE IN LAGRANGE COUNTY.

By C. F. Robinson, Inspector, for the Year 1916.

Type of Scale.	Correct and Sealed.	Ad-justed.	Con-demned for Repair.	Con-demned.	Rein-spected.	Total.	Per Cent. In-correct.
R. R. Track.....							
Hopper.....	9	3	1	1	2	14	35.7
Wagon.....	45	15	7	6	4	73	38.1
Tipple.....							
Platform.....	80	18	2	1	2	101	20.7
Automatic.....							
Suspens.....							
Counter.....	58	6	1	1	1	67	13.4
Spring.....	42	6		16		64	34.2
Beam.....							
Computing.....	69	34	3		3	66	55.4
Cream.....							
Slot Per.....							
Prescrip.....							
Metric.....							
Postal.....							
Total.....	303	82	14	25	12	424	28.5
Avoir. Wt.....							
Troy Wt.....							
Apoth. Wt.....							
Total.....							

## SUMMARY OF TESTS MADE.

Capacity Measures.	Sealed.	Ad-justed.	Con-demned for Repairs.	Con-demned.	Rein-spected.	Total.	Per Cent.
Dry Meas.....	7			4		11	36.3
Barrels.....							
Baskets.....							
Berry Boxes.....							
Boxes.....							
Crates.....							
Liq. Meas.....	86			6		92	6.5
Milk Bottles.....							
Milk Cans.....							
Aut Pumps.....	58	37	5	2	3	102	43.1
Oil Cans.....							
Ice Cream Cans.....	10					10	
Gls. Grads.....	6					6	
Lin. Meas.....							
Yard Sticks.....							
Counter Meas.....	30					30	
Tapes.....							
Gas Mtrs.....							
Elec Mtrs.....							
Taxi Mtrs.....							
Miscellaneous.....							
Total.....	197	37	5	12	3	251	21.5

Grand total of inspections made of weights and measures including reinspec-  
tions for the year 1916..... 690

Articles reweighed or measured, correct..... 49

Articles reweighed or measured, incorrect..... 6

Total..... 55

Mr. Robinson reports no prosecutions.

Mr. Robinson only works as inspector of weights and Measures three months in the year.

SUMMARY OF TESTS MADE IN INDIANA DURING THE MONTHS OF  
OCTOBER, NOVEMBER AND DECEMBER 1916, BY  
STATE DEPARTMENT.

Type of Scale.	Correct and Sealed.	Ad- justed.	Con- demned for Repair.	Con- demned.	Rein- spected.	Total.	Per Cent. In- correct.
R. R. Track . . . . .	1					1	
Hopper . . . . .							
Wagon . . . . .	70		25			95	25.8
Tipple . . . . .							
Platform . . . . .	92		19			111	17.1
Automatic . . . . .							
Suspens. . . . .	4		2			6	33.3
Counter . . . . .	90		13	21		124	23.3
Spring . . . . .	13			53		66	80.3
Beam . . . . .							
Computing . . . . .	191		60	12		263	27.4
Cream . . . . .							
Slot Per . . . . .							
Prescrip. . . . .							
Metric . . . . .							
Postal . . . . .							
Total . . . . .	461		119	86		666	30.6
Avoir. Wt. . . . .	493	9	21	24		547	9.8
Troy Wt. . . . .							
Apoth. Wt. . . . .							
Total . . . . .							
Dry Measures . . . . .	207			185		392	47.1

Grand total of inspections made of weights and measures for three months,  
October, November and December 1916 . . . . . 1,605

REPORT OF TESTS OF WEIGHTS AND MEASURES MADE  
AT STATE INSTITUTIONS UNDER THE SUPER-  
VISION OF THE STATE BOARD  
OF CHARITIES.

The annual inspection of all scales and measures in use at the institutions operated under the supervision of the State Board of Charities was made by John T. Willett, State Inspector of Weights and Measures. His findings at the several institutions visited are shown by the following reports made to Hon. Amos Butler, Secretary of the State Board of Charities and to the Superintendents.

January 6, 1917.

Hon. Amos Butler, Sec'y,  
State Board of Charities,  
Indianapolis, Indiana.

Dear Mr. Butler:—

I enclose herewith copies of letters sent to the superintendents of the several State Institutions at which Inspector Willett has tested the scales, weights and measures. You will note that in each case the report shows the work done and wherever conditions were unsatisfactory recommendations for their correction were made.

I also enclose a tabulation of the tests made of the scales and weights at State Institutions under the supervision of the State Board of Charities. You will note that the percentage of scales found incorrect is but 15.05. At the time of the first inspection this percentage was 44.8. Each year the condition of the scales improves. No incorrect weights were found at any institution. In other years, a number of such weights have been found and condemned.

The weighing and measuring equipments at State Institutions are for the most part in good condition. They are now receiving intelligent care and used with an appreciation of the fact that they are valueless unless they are accurate.

Yours very truly,

State Commissioner of Weights and Measures.

July 15, 1916.

Col. D. E. Kehler, Commandant,  
Soldier's Home,  
LaFayette, Indiana.

My dear Colonel:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the condition of the weights and measures used at the Soldier's Home.

One wagon scale tested and found correct.

Three platform scales tested and found correct.

One counter scale tested and found correct.

Fourteen weights tested and found correct.

Very truly yours,

Chief State Inspector of Weights and Measures.

July 22, 1916.

Mr. Chas. E. Talkington, Sup't,  
Indiana State Farm,  
Greencastle, Indiana.

Mr. dear Mr. Talkington:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the weights and measures used at the State Farm.

One wagon scale tested and found correct.

One platform scale tested and found correct.

One counter scale tested and found correct.

One hospital scale tested and found correct.

Eight weights tested and found correct.

I recommend that the wagon scale be properly protected from the elements by a substantial building or shed.

Very truly yours,

Chief State Inspector of Weights and Measures.

July 1, 1916.

Miss Margaret M. Elliott, Sup't,  
Indiana Woman's Prison,  
Indianapolis, Indiana.

My dear Madam:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the condition of the weights and measures used at the Woman's Prison.

One wagon scale tested and found correct.

Two platform scales tested and found correct.

One counter scale tested and found correct.

Thirteen weights tested and found correct.

I recommend that the wagon scale be properly protected from the elements by substantial building or shed.

Very truly yours,  
Chief State Inspector of Weights and Measures.

July 1, 1916.

Mr. George S. Wilson, Sup't,  
Indiana School for the Blind,  
Indianapolis, Indiana.

My dear Mr. Wilson:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the condition of the weights and measures used at the Indiana School for the Blind.

One wagon scale tested and found correct.

One platform scale tested and found correct.

One counter scale tested and found correct.

One ice spring scale, after regulating the balance, was tested and found correct.

Very truly yours,  
Chief State Inspector of Weights and Measures.

July 1, 1916.

Mr. Richard O. Johnson, Sup't,  
State School for the Deaf,  
Indianapolis, Indiana.

My dear Mr. Johnson:—

In compliance with Section 2 of the Weights and Measure Law, I herewith submit a report of the condition of the weights and measures used at the State School for the Deaf.

Three platform scales tested and found correct.

One counter scale tested and found correct.

Eight weights tested and found correct.

I recommend that the wagon scale which has not been in use for the past two years be repaired and that a substantial building or shed be constructed over the scale.

Yours very truly,  
Chief State Inspector of Weights and Measures.



July 8, 1916.

Dr. George F. Edenharter, Sup't,  
Central Hospital for the Insane,  
Indianapolis, Indiana.

My dear Dr. Edenharter:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the condition of the weights and measures used at the Central Hospital.

One wagon scale tested and found correct.

Two platform scales tested and found correct.

One counter scale tested and found correct.

Seven weights tested and found correct.

I recommend that the wagon scale be properly protected from the elements by a substantial building or shed.

Respectfully submitted,  
Chief State Inspector of Weights and Measures.

July 8, 1916.

Dr. Kenosha Sessions, Sup't,  
Indiana Girls School,  
R. R. No. 18, City.

My dear Dr. Sessions:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the condition of the weights and measures used at the Girls' School.

One wagon scale tested and found correct.

One platform scale tested and found correct.

One counter scale tested and found correct.

Three weights tested and found correct.

I recommend that the wagon scale be properly protected from the elements by a substantial building or shed.

Very truly yours,  
Chief State Inspector of Weights and Measures.

July 15, 1916.

Dr. F. W. Terflinger, Sup't,  
Northern Hospital for the Insane,  
Logansport, Indiana.

My dear Doctor:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the weights and measures used at the Northern Hospital.

One wagon scale tested and found correct.

Three platform scales tested and found correct.

Three counter scales tested and found correct.

One suspension scale tested and found correct.

Twenty-one weights tested and found correct.

Two platform scales tested and found incorrect, one being located in the kitchen and the other in the boiler room. As commodities for the

Institution are not bought over these scales, it is not so important that they be correct. These two scales however can be repaired with very little cost.

The new suspension scale located in the meat room is in excellent condition.

I recommend that the wagon scale be properly protected from the elements by a substantial building or shed.

Very truly yours,  
Chief State Inspector of Weights and Measures.

July 15, 1916.

Mr. E. J. Fogarty, Warden,  
Indiana State Prison,  
Michigan City, Indiana.

My dear Mr. Fogarty:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the condition of the weights and measures used at Indiana State Prison.

One railroad track scale tested and found correct.

Five platform scales tested and found correct.

Three counter scales tested and found correct.

One platform scale condemned for repairs.

Twenty-four weights tested and found correct.

I recommend that the platform scale used in the kitchen be repaired. I find the knife edges are dull which causes the scale to break very slowly and weigh incorrectly.

Very truly yours,  
Chief State Inspector of Weights and Measures.

July 22, 1916.

Mr. Guy C. Hanna, Sup't,  
Indiana Boys' School,  
Plainfield, Indiana.

My dear Mr. Hanna:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the weights and measures used at the Indiana Boys' School.

One wagon scale tested and found correct.

One platform scale tested and found correct.

One counter scale tested and found correct.

One small suspension scale tested and found correct.

Ten weights tested and found correct.

I recommend that the wagon scale be properly protected from the elements by a substantial building or shed.

Very truly yours,  
Chief State Inspector of Weights and Measures.

July 22, 1916.

Dr. C. J. Stevens, Sup't,  
Tuberculosis Hospital,  
Rockville, Indiana.

My dear Doctor:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the condition of the weights and measures used at the Tuberculosis Hospital.

One wagon scale tested and found correct.

One platform scale tested and found correct.

One hospital scale tested and found correct.

One hospital platform scale tested and found incorrect.

Seven weights tested and found correct.

One one hundred pound weight was found to be one pound light. This weight was adjusted.

I recommend that a new scale be installed in the north hospital chart room.

I also recommend that the wagon scale be properly protected from the elements by a substantial building or shed.

Very truly yours,  
Chief State Inspector of Weights and Measures.

July 29, 1916.

Dr. W. C. VanNuys, Supt.  
Village of Epileptics,  
Newcastle, Indiana.

My dear Doctor:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the weights and measures used at the Village of Epileptics.

One wagon scale tested and found correct.

Two platform scales tested and found correct.

Three counter scales tested and found correct.

Fifteen weights tested and found correct.

I recommend that the wagon scale be properly protected from the elements by a substantial building or shed.

Very truly yours,  
Chief State Inspector of Weights and Measures.

July 29, 1916.

Soldiers' and Sailors' Orphans' Home,  
Mr. Temple H. Dunn, Sup't,  
Knightstown, Indiana.

My dear Sir:—

In compliance with the Weights and Measures Law of 1913, I herewith submit a report of the weights and measures used at the Soldiers' and Sailors' Orphans' Home.

One wagon scale tested and found incorrect.

One platform scale tested and found correct.

One counter scale tested and found incorrect.

Three weights tested and found correct.

I recommend that a new wagon scale be installed to take the place of the old one, which is unfit for use, and that a small counter scale be installed in the meat room.

Yours very truly,  
Chief State Inspector of Weights and Measures.

July 29, 1916.

Dr. Chas. P. Emerson, Dean,  
College of Medicine,  
R. W. Long Hospital,  
Indianapolis, Indiana.

My dear Doctor:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the weights and measures used at the Robert W. Long Hospital.

Three platform scales adjusted and tested and found correct.

One counter scale tested and found correct.

I recommend that all foods coming in for the Hospital be weighed by the person in charge of the purchasing.

Very truly yours,  
Chief State Inspector of Weights and Measures.

August 19, 1916.

Dr. D. C. Peyton, Sup't,  
Indiana Reformatory,  
Jeffersonville, Indiana.

My dear Dr. Peyton:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the condition of the weights and measures used at the Indiana Reformatory.

One platform scale in store room upon inspection showed the upper poise to be light one pound on one hundred pounds. This is caused by the screw dropping out of the poise. After adjustment the scale was tested and found correct.

One counter scale tested and found correct.

One platform scale in foundry after adjustment was tested and found correct.

Eighteen weights tested and found correct.

Yours very truly,  
Chief State Inspector of Weights and Measures.

September 30, 1916.

Dr. George S. Bliss, Sup't,  
School for Feeble-Minded Youth,  
Fort Wayne, Indiana.

My dear Dr. Bliss:—

In compliance with Section 2 of the Weights and Measures Law, I herewith submit a report of the condition of the weights and measures used at the School for the Feeble-Minded Youths.

One wagon scale tested and found correct.  
 Three platform scales tested and found correct.  
 One suspension scale tested and found correct.  
 Two counter scales tested and found correct.  
 Seventeen weights tested and found correct.

I recommend that the wagon scale be properly protected from the elements by a substantial building or shed.

Very truly yours,  
 Chief State Inspector of Weights and Measures.

September 25, 1916.

Dr. Jas. W. Milligan, Sup't,  
 Southeastern Hospital for the Insane,  
 North Madison, Indiana.

My dear Dr. Milligan:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the condition of the weights and measures used at the Southeastern Hospital.

One wagon scale tested and found correct.  
 Three platform scales tested and found correct.  
 One suspension scale found incorrect.  
 Eighteen weights tested and found correct.

After a complete test of the suspension scale located in the meat room, I find that the sensibility of the scale is not accurate enough for the purpose for which the scale is used. I recommend therefore, that a new scale be installed in its place.

Yours very truly,  
 Chief State Inspector of Weights and Measures.

September 25, 1916.

Dr. S. E. Smith, Sup't,  
 Eastern Hospital for the Insane,  
 Richmond, Indiana.

My dear Dr. Smith:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith report on the condition of the weights and measures used at the Eastern Hospital.

One wagon scale tested and found correct.  
 Three platform scales tested and found correct.  
 One suspension scale tested and found correct.  
 Two counter scales tested and found correct.  
 Twenty weights tested and found correct.

Very truly yours,  
 Chief State Inspector of Weights and Measures.

October 31, 1916.

Dr. C. E. Laughlin, Sup't,  
Southern Hospital for the Insane,  
Evansville, Indiana.

My dear Doctor:—

In compliance with Section 2 of the Weights and Measures Law of 1913, I herewith submit a report of the condition of the weights and measures used at the Southern Hospital.

One wagon scale tested and found incorrect.

One platform scale tested and found correct.

One suspension scale tested and found correct.

Two scales which were condemned last year have not been used this year.

Eleven weights tested and found correct.

After a complete test and inspection of this wagon scale, I find that it is weighing slow. In other words, 500 pounds test weights only weighed 495 pounds. This means 20 pounds to the ton. The timbers in the scale are in a very rotten condition. This may be responsible for the scale weighing slow, in that the bearings may not be level.

I suggest that the scale be taken up and new timbers installed and the bearings and pivots be cleaned, and that the scale be properly protected from the elements by a substantial building or shed.

Very truly yours,  
Chief State Inspector of Weights and Measures.

21

**REPORT OF THE STATE DEPARTMENT OF WEIGHTS AND MEASURES  
OF TESTS MADE OF THE SCALES AND WEIGHTS AT STATE INSTITU-  
TIONS UNDER THE SUPERVISION OF THE BOARD OF STATE CHARIT-  
TIES FOR THE YEAR 1916.**

State Institutions.	Scales Correct.	Scales Adjusted.	Scales Condemned.	Scales Condemned for Repairs.	Total Number Scales Inspected.	Weights Correct.	Weights Adjusted.	Weights Condemned.	Weights Condemned for Repair.	Total Number of Weights Inspected.
State Soldiers' Home, Lafayette.....	4				4	14				14
Penal Farm, Greencastle.....	4				4	8				8
School for Blind, Indianapolis.....	3	1			4					
State School for Deaf, Indianapolis.....	4				4	8				8
Indiana Woman's Prison, Indianapolis.....	4				4	13				13
Central Hospital for Insane, Indianapolis.....	4				4	7				7
Indiana Girl's School, Indianapolis.....	3				3	3				3
Northern Hospital for Insane, Logansport.....	8			2	10	21				21
Indiana State Prison, Michigan City.....	9			1	10	24				24
Indiana Boys' School Plainfield.....	4				4	10				10
Indiana Tuberculosis Hospital, Rockville.....	4			1	5	8				8
Village for Epileptics Newcastle.....	6				6	15				15
Indiana Soldiers' and Sailors' Orphans Home, Knightstown.....	1		1	1	3	3				3
Robt. W. Long Hospital, Indianapolis.....	1	3			4	6				6
Indiana Reformatory, Jeffersonville.....	1	2			3	18				18
School for Feeble-Minded Youths, Ft. Wayne.....	6				6	17				17
Southeastern Hospital for Insane, North Madison.....	4			1	5	18				18
Eastern Hospital for Insane, Richmond.....	7				7	20				20
Southern Hospital for Insane, Evansville.....	2			1	3	11				11
<b>Total.....</b>	<b>79</b>	<b>6</b>	<b>1</b>	<b>7</b>	<b>93</b>	<b>224</b>				<b>224</b>

Percentage of scales found incorrect ..... 15.05  
 Percentage of weights found incorrect ..... None

## THE WEIGHT OF LOAVES OF BAKER'S BREAD.

During the week of December tenth, the deputy inspectors of weights and measures working in Indiana made careful weighings of loaves of bread in different sizes made by the bakers in their cities. They weighed respective loaves every day for a week and gave me their figures. In working in this way I secured the weights of loaves made by one hundred and eleven bakers doing business in thirteen cities. The average weight of 1,833 ten-cent loaves was 21.22 ounces. Of 3,443 five-cent loaves the average weight was 11.05 ounces. If the ten-cent loaf had been exactly twice the weight of the five-cent loaf it would have weighed 22.10 ounces. As a matter of fact, the average loaf was .88 of an ounce less than twice as heavy as the ten cent loaf.

In fairness to the baker these figures must be analyzed a little further. In Indianapolis where we weighed the loaves of 20 bakers the average weight of the ten cent loaf was 22 ounces—of the five cent loaf 11 ounces, exactly half weight. In La-Fayette the ten cent loaf of nine bakers averaged 19.8 ounces and the five cent loaf 9.6 ounces. In Crawfordsville the ten cent loaf of five bakers weighed 23 ounces, the smaller loaf 11 ounces. In Columbus the large loaf of five bakers weighed 23 ounces, the smaller loaf 10.6 ounces. In Marion the large loaf of nine bakers weighed 23.6 ounces, the smaller loaf 11.5 ounces. All of these figures show fair play with the public. The large loaf is as large as or larger than two small loaves.

In Huntington the large loaf of 7 bakers weighed 21.5 ounces, the smaller loaf 11.7 ounces. In Elkhart where 9 bakers were studied the large loaf weighed 21.1 ounces, the smaller loaf 12.4 ounces. In Richmond the large loaf of nine bakers weighed 20.9 ounces, the smaller loaf 11.6 ounces. In Gary the large loaf made by 4 bakers weighed 18.9 ounces, the smaller loaf 10.8 ounces. Here is a condition in which the consumer gets more than 14 percent more bread in the form of the smaller loaf than in the large loaf. In Mishawaka the large loaf of five bakers weighed 19.7 ounces, the smaller loaf 11.2 ounces.

The average weights of all the loaves tested in the several cities is shown by the following table.



Name of City.	Number of manufacturers from which samples were weighed.	Number of 10 ct. loaves (white).	Number of 5 ct. loaves (white).	Number of 10 ct. loaves (rye).	Number of 5 ct. loaves (rye).	Number of 8 ct. loaves (white).	Total number of loaves weighed.	Average weight of 10 ct. loaves (white).	Average weight of 5 ct. loaves (white).	Average weight of 10 ct. loaves (rye).	Average weight of 5 ct. loaves (rye).	Average weight of 8 ct. loaves (white).	Average weight of 20 ct. loaves (white).	Average weight of 25 ct. loaves (white).
Indianapolis.	20	68	224	1	1	2	298	22.0	11.0	27.0	13.0	21.3	50.5	64.0
South Bend.	18	108	96				204	20.4	11.9					
Lafayette.	9	350	300				650	19.8	9.6					
Crawfordsville.	5	50	300				350	23.0	11.0					
Columbus.	5	200	200				400	23.0	10.6					
Marion.	9	290	1,260		100.		1,650	23.6	11.5		11.0			
Huntington.	7	74	79				153	21.5	11.7					
Elkhart.	9	58	32				90	21.1	12.4					
Terre Haute.	20	79	80	13	30	415	202	20.4	9.7		12.6	32.0		
Richmond.	9	230	428				1,073	20.9	11.6					
Gary.	4	24	24				48	18.9	10.8*					
Mishawaka.	5	247	240	3			490	19.77	11.2	21.5				
Muncie.	5	55	180				235	21.66	10.65					
Total.	125	1,833	3,443	16	121	417	5,835	21.22	11.05	21.5	12.6	26.6	50.5	64.0

Number of manufacturers from which samples were weighed.	111
Number of 10 cent loaves (white) weighed.	1,833 av. wt. 21.22
Number of 5 cent loaves (white) weighed.	3,443 av. wt. 11.05
Number of 10 cent loaves (rye) weighed.	16 av. wt. 24.9
Number of 5 cent loaves (rye) weighed.	121 av. wt. 12.2
Number of 8 cent loaves (white) weighed.	417 av. wt. 25.6
Number of 20 cent loaves (white) weighed.	1 av. wt. 50.5
Number of 25 cent loaves (white) weighed.	1 av. wt. 64.0
Total.	5,835

Report submitted during the week, of December 10, 1916.

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INDIANA STATE BOARD OF HEALTH

ELEVENTH ANNUAL REPORT

OF THE

Bacteriological and Pathological  
Laboratory

OF THE

LABORATORY OF HYGIENE

FOR THE

YEAR ENDING SEPTEMBER 30, 1916.

---

WILL SHIMER, A.B., M.D., Superintendent.

BOARD MEMBERS:

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### LABORATORY STAFF.

WILL SHIMER, A.B., M.D., Superintendent.  
ADA E. SCHWEITZER, M.D., Assistant Bacteriologist.  
R. J. ANDERSON, A.B., M.D., Assistant Pathologist.  
HERVEY M. HOOKER, Clerk and Stenographer.  
ETTA M. DOLAN, Stenographer.  
(Deceased)  
MARGUERITE N. HEWITT, B.S., Stenographer.  
TALITHA A. GERLACH, Scientific Assistant.  
(Resigned—October 1, 1916.)  
JULIA S. ZANDER, Scientific Assistant.  
ROBERT P. JOHNSON, Technical Assistant.

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## INTRODUCTION.

It is surprising how much work can be done in a small space. Large quarters make work easier and more systematized. The whole trend of the modern world is co-operation of the workers and standardization of working methods. The ideals of a laboratory director are accuracy and efficiency. Efficiency consists in getting the large amount of work done in the shortest time with the least strain on the workers, without lowering the accuracy of the results.

As laboratory work becomes more abundant in Public Health Administration and Diagnostic Medicine, the cost of getting things done increases at a tremendous rate. The amount of money available for laboratory work is wholly inadequate to get work done in the old way. We have been gradually introducing non-medical graduates into the laboratory as technical assistants. For the most part these technical assistants have been recent graduates from the Indianapolis High Schools. No progressive physician can do the routine work necessary in a large laboratory and have any time to keep up with medical progress. One is surprised that technical assistants are not more widely used since few professional men would think of doing their own typewriting.

Many physicians seem to think there is something mysteriously efficient in medical school laboratory instruction or that there is something unusually difficult to learn in learning laboratory technic. One is constantly surprised at the short time it takes high school graduates to learn to do laboratory work rapidly and efficiently.

The method of employing technical assistants ought to become universal in city and county public health laboratories. Of course these young girls can be held only accountable for results and not their interpretation. We cannot see why a number of physicians should not co-operate in having a technical assistant who shall do her work under the guidance of one of their number who thoroughly understands how to do laboratory work.

This method of getting work done is not new, but is common in Germany and is known as the Diener system and is also common in the medical department of the United States Army. In both systems, however, mostly men are employed. Men, however, cannot afford to begin to work at the wages women can.

Women seem, too, from their long traditional house duties particularly fitted to technical laboratory methods.

More than 22,000 specimens have been examined and many of these were examined two or three times so that the amount of work done is much greater than the 22,000 specimens.

There has been a steady demand for typhoid vaccine from all parts of the State in spite of the cheapness of the commercial products. We have had two unusual demands for typhoid vaccine. When the Indiana State Militia was about to be mobilized at Fort Benjamin Harrison, General Bridges asked the laboratory to supply the typhoid vaccine. 8,000 doses were supplied to the Indiana soldiers. Lieutenant Colonel Bannister, U. S. A., ranking medical officer at Fort Benjamin Harrison, expressed his appreciation of the help of the laboratory since the United States War Department did not send any vaccine until almost three weeks after the troops arrived in camp.

Owing to a severe epidemic of typhoid fever among children of school age in Indianapolis, the City Board of Health thought it best to compel every child to be vaccinated before entering school.

This laboratory has been administering typhoid vaccine free of charge ever since the flood in Indianapolis. No provision having been made by the City Board of Health for free vaccination, great numbers of school children applied to the State Laboratory for prophylactic treatment. The thing which made our work so difficult was that most children waited until school opened before applying for treatment. On the afternoon of the first day of school the laboratory staff vaccinated more than 3,000 children. The school board demanded certificates of vaccination and these certificates required considerable extra time and work. We believe that a conservative estimate of the number vaccinated during six weeks is from 15,000 to 20,000. The most gratifying thing is that although no selection of children was made, no severe injury occurred in any of the children. There were a few subcutaneous abscesses which seemed to be all from one morning's work.

The vaccine given the school children consisted of both typhoid and paratyphoid bacilli. The Indiana State Militia were the first soldiers in the United States to receive a paratyphoid vaccine and the school children of Indianapolis were the first children to be treated with a mixed vaccine. Not a single case of typhoid or paratyphoid occurred subsequent to vaccina-



tion by this laboratory but there was one or two cases of the disease developed among those vaccinated with a commercial product.

The work of preparing and giving typhoid vaccine gave us a chance to try out the ability of the laboratory to increase its work in emergencies. We believe the present laboratory organization in an emergency such as an epidemic or other public catastrophe will serve as the skeleton around which can be built a laboratory force that would be able to take care of any amount of work that might become necessary.

In December of 1915 we began to use Loeffler's blood serum containing potassium tellurate. In diagnostic cultures both the old and new kinds of blood serum was used. The potassium tellurate gave 2% more positives than the old medium. Owing to the scarcity of drugs we have not been able to obtain any tellurate but can get the potassium tellurite; the latter seems to give as good results as the former.

All of the blood serum used has been made in this laboratory, using slanting copper racks for coagulating and sterilizing in the auto-clave. By this method it is comparatively easy to make 1,500 tubes in one day. One thing that makes our work rather easy and simple is that all our tubes are of the same size. These are usually purchased in 20,000 lots. The tubes are first used as swab tubes and when returned to the laboratory, they are replugged, sterilized with hot air and filled with blood serum. Our swabs are made from No. 12 gauge aluminum wire which is very easy to manipulate.

As blood serum costs about five cents a tube wholesale and is practically impossible to obtain in large amounts, this making of our own serum saves considerable money as well as makes it possible for us to do much more work than would be possible otherwise.

There has always been considerable difficulty in getting physicians to use the outfits furnished by the laboratory and when large demands were made upon the laboratory the orders were filled with considerable difficulty. At present the outfits are so standardized and their assembling so well systematized that any demand for outfits can be promptly met.

The expense of buying these outfits is very heavy and now with rent, insurance, janitor service and many other additional expenses which have to come out of the \$10,000 appropriated it requires a good deal of planning to make the available money

cover the necessary expenses. The cost of outfits alone is almost \$1,000 per year. There has been no increase in the amount of money appropriated for the laboratory in ten years although the amount of work done is many times greater than in the first few years.

In order to make this report as valuable as possible each kind of specimen has been arranged according to counties from which they came, to monthly positives and negatives for 1916, and the ten previous years of the laboratory and to percentage of positives for all previous years of the laboratory. This method of tabulating the work done gives information as to the geographical source of the specimens, their character and a comparison of the results of this years work with that of previous years. The sputum, diphtheria, typhoid, pus, blood, rabies and pathological specimens have been arranged in this manner in the present report.

Detailed information is given concerning persons who have received the Pasteur antirabic treatment as to county, town, name, age, sex, kind and location of bites, kind of animals that did the biting, the virus used for the treatment and results of treatment in each case. The clinical sheets are numbered in the order in which the patients came to the laboratory for treatment and are substantially bound. The volumes are an authentic and valuable record of the rabies situation in Indiana for the last five years and will no doubt some day be a valuable source of information on hydrophobia in Indiana.

The remainder of the report is made up of special contributions by the members of the laboratory staff.

Each year shows some increase in number and kinds of examinations made. Beginning with an average of seven specimens examined per day in 1906 the work has increased to an average of seventy-one in 1916. That is to say, that the laboratory is doing ten times as much work per day now, as it did the first year. During the first year examinations of only sputum for tubercle bacilli, swabs for diphtheria bacilli and blood were made.

Now in addition to these, blood is examined for malaria, leukemia and anaemia, blood counts are made, pus is examined for gonococci, urine and feces examined for typhoid bacilli, hookworm and other intestinal parasites, pathological tissues are examined for malignancy and brains examined for rabies.

TABLE 1.  
Summarizing Routine Examinations for Ten Years.  
1906-1916.

Year.	Sputum.	Diphtheria.	Typhoid.	Malaria.	Pathological Tissues.	Rabies.	Gonococci.	Miscellaneous.	Total.	Average per day.
1906.....	1,503	171	499	45	.....	.....	.....	66	2,239	7
1907.....	2,116	633	802	167	.....	.....	.....	395	3,991	12
1908.....	3,136	2,779	1,270	167	165	.....	.....	310	8,087	26
1909.....	3,458	1,445	1,508	194	187	144	178	666	7,951	25
1910.....	3,583	1,638	1,404	189	309	134	349	8,786	8,786	28
1911.....	4,228	2,452	2,038	203	415	243	430	1,099	11,142	35
1912.....	4,688	9,377	1,850	200	714	314	534	1,546	18,276	58
1913.....	4,784	15,792	2,264	155	435	328	542	803	25,372	81
1914.....	4,947	11,064	2,751	139	365	311	691	1,024	21,292	70
1915.....	4,930	3,772	1,583	146	430	300	767	8,788	20,716	66
1916.....	6,086	9,994	3,193	146	403	214	983	8,993	22,012	70

**TABLE 2.**  
*Showing Number, Kind and Result of Specimens Examined.*  
*October 1, 1915–October 1, 1916.*

Kind of Examination.	Result of Examination.		
	Positive.	Negative.	Total.
Sputum for tubercle bacilli . . . . .	1,926	4,160	6,086
Blood for Widal reaction . . . . .	348	1,606	1,954
Blood for Widal paratyphoid . . . . .	29	1,210	1,239
Blood for malaria . . . . .	20	126	146
Blood for counts . . . . .			148
Throat cultures for diphtheria bacilli . . . . .	1,311	2,958	4,269
Epidemic diphtheria . . . . .	190	5,535	5,725
Pus for gonococci . . . . .	467	516	983
Pathological tissues . . . . .			403
Brains for rabies . . . . .	138	76	214
Fluids miscellaneous . . . . .			53
Feces miscellaneous . . . . .			91
Pus miscellaneous . . . . .			137
Urine for tubercle bacilli . . . . .	5	31	36
Urine miscellaneous . . . . .			496
Miscellaneous specimens . . . . .			32
<b>Total . . . . .</b>			<b>22,012</b>

TABLE 3.  
Showing Kind of Specimens Examined Per Month and Results.  
October 1, 1915–October 1, 1916.

Classification.	Jan.		Feb.		March.		April.		May.		June.		July.		August.		Sept.		Oct.		Nov.		Dec.		Total.
	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	
Sputum.....	135	293	160	327	211	465	178	394	165	449	174	395	153	349	175	346	152	323	124	272	148	269	151	278	6,086
Diphtheria.....	105	253	120	287	133	229	65	147	51	189	43	136	37	112	43	83	123	183	147	466	240	449	204	424	4,269
Diphtheria Epidemic.....	.....	8	40	408	16	101	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	20	462	241	788	43	1,329	471	439	5,725
Widal.....	17	61	21	81	18	96	6	5	12	91	12	92	24	153	77	372	64	305	35	118	24	95	38	86	1,954
Paratyphoid.....	.....	23	.....	5	.....	1	.....	1	.....	2	1	87	.....	177	9	440	14	356	.....	8	.....	2	4	108	1,239
Malaria.....	1	12	.....	7	.....	8	.....	10	1	1	5	2	9	5	.....	2	7	20	2	10	1	11	1	12	146
Blood counts.....	.....	10	.....	9	.....	11	.....	14	.....	15	.....	13	.....	16	.....	15	.....	16	.....	14	.....	17	.....	8	148
Gonococci.....	40	21	40	38	44	67	33	40	44	41	36	62	32	33	34	49	33	56	35	41	47	35	49	28	983
Brains.....	12	5	6	3	10	5	17	4	17	13	16	8	12	10	9	.....	8	3	12	2	11	4	8	1	214
Pathological tissues.....	.....	25	.....	30	.....	44	.....	39	.....	41	.....	24	.....	45	.....	35	.....	26	.....	38	.....	32	.....	21	403
Urine for T. B.....	.....	1	.....	2	.....	2	.....	2	.....	3	1	.....	3	.....	.....	.....	.....	1	.....	.....	2	1	2	.....	3
Urine.....	.....	24	.....	57	.....	74	.....	40	.....	40	.....	59	.....	28	.....	45	.....	50	.....	32	.....	19	.....	28	496
Feces.....	.....	9	.....	8	.....	9	.....	9	.....	8	.....	5	.....	1	.....	12	.....	11	.....	10	.....	7	.....	5	91
Feces Miscellaneous.....	.....	9	.....	10	.....	9	.....	15	.....	11	.....	12	.....	9	.....	5	.....	12	.....	17	.....	15	.....	9	137
Pus.....	.....	4	.....	2	.....	4	.....	8	.....	3	.....	1	.....	1	.....	2	.....	5	.....	4	.....	5	.....	5	53
Fluids.....	.....	4	.....	2	.....	4	.....	2	.....	2	.....	4	.....	1	.....	7	.....	3	.....	2	.....	.....	.....	1	.....
Miscellaneous.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Totals.....	310	759	390	1,282	432	1,135	299	783	201	913	285	906	263	974	347	434	421	1,833	379	2,824	515	2,376	502	2,459	22,012

N. B. Potassium tellurate examinations were also made on 2,128 of the diphtheria cultures which would make a grand total of 24,140 examinations made.

TABLE 4.

*Total Amount of Work Done by the Laboratory.  
October 1, 1915–October 1, 1916.*

Month.	Specimens	Typhoid Vaccine.	Outfits.	Patients Treated.	Guinea Pigs.
October.....	3,203	577	4,845	14	1
November.....	2,791	204	4,006	15	1
December.....	2,961	389	2,102	6	6
January.....	1,069	162	1,421	7	9
February.....	1,672	545	2,753	11	4
March.....	1,567	713	1,910	6	4
April.....	1,082	2,570	1,120	18	4
May.....	1,204	1,148	3,617	15	4
June.....	1,291	4,305	1,256	11	11
July.....	1,237	1,119	941	40	2
August.....	1,781	5,089	1,559	4	8
September.....	2,254	9,025	3,210	4	.....
Total.....	22,012	25,846	28,740	151	54

TABLE 5.

*Showing Number of Examination Each Month.  
October 1, 1915–October 1, 1916.*

<i>Month.</i>	<i>Number of Specimens.</i>
October.....	3,203
November.....	2,791
December.....	2,961
January.....	1,069
February.....	1,762
March.....	1,567
April.....	1,082
May.....	1,204
June.....	1,191
July.....	1,237
August.....	1,781
September.....	2,254
Total.....	22,012

NOTE—Potassium tellurate examinations were also made on 2,128 of the diphtheria cultures which would make a total of 24,140 examinations.

## TUBERCULOSIS.

Six thousand and eighty-six specimens of sputum were examined for tubercle bacilli and one thousand, nine hundred and twenty-six or 32% of these specimens were positive. It is remarkable how uniform are the number of sputum specimens examined from year to year. In 1915 there were 4,926 sputum specimens examined and of these 1,190 or 24% were found to contain tubercle bacilli. One of the most remarkable things about these examinations is that our positives have increased 8% over last year. This increase in positives can to some extent be credited to a method of examining smears used all during this year. The individual smears are made one centimeter wide and five centimeters long. The microscope is moved 2 millimeters each time the microscope travels from one end of the smear to the other. This means that each smear is examined from one end to the other ten times. This method will, under ordinary circumstances give more than 30% positives and 70% negatives. Of the negatives not less than 10% will contain acid fast bacilli or particles retaining the carbol fuchsin stain. One percent of these substances will resemble tubercle bacilli to some extent so that one who is not accustomed to seeing tubercle bacilli might call them positive. This simply proves the contention of experienced consultants that acid fast bacilli in the sputum without clinical symptoms does not always mean tuberculosis. Where acid fast bacilli resembling tubercle bacilli are found in the sputum, it is well to ask for another specimen.

The following method is used in preparing sputum specimens to be examined: Antiformin is added to the sputum in the proportion of three parts sputum to one part antiformin; this mixture is then shaken on a Richard's sputum shaker for five minutes after which it is poured into 50 c.c. centrifuge tubes 30 c.c. of water added and then centrifugated at 3,000 revolutions per minute for ten minutes. The supernatant fluid is poured off by turning the tube quickly upside down. The residue is then smeared on a large glass slide which has previously been smeared with Meyers albumin. This slide is then stained with carbolfuchsin and decolorized with a 20% solution of Hcl in 95% Ethyl alcohol, then washed and counterstained twice with Loeffler's alkaline methylene blue.

There has been some criticism of this method of preparing sputum for examination viz. that we failed to find tubercle bacilli

in some positive specimens. There are acid fast bacilli in air and food stuff that closely resemble tubercle bacilli which ordinary Gabbett's blue will not decolorize but acid alcohol will. Antiformin will not destroy tubercle bacilli even if used in full strength and allowed to stand in contact with the sputum 24 hours or more. It is possible that the ordinary method of sputum examination may give too many positives.

The following is the method used for making antiformin:

Sodium carbonate .....	15 grams.
Chloride of lime .....	10 grams.
Sodium hydroxide .....	15 grams.
Water...	100 c.c.

Directions for mixing:

- (a) Dissolve 15 grams of sodium carbonate in 25 c.c. of water.
- (b) Add 10 grams of chloride of lime to 25 c.c. water.
- (c) Dissolve 15 grams of sodium hydroxide in 50 c.c. water.
- (d) Add equal parts of supernatant fluid (a and b). Only the best chemicals should be used.

We have found that if 30 grams instead of 15 grams of sodium hydroxide are used the finished product can be diluted one half and the results will be just as good as if the full strength solution had been used. The stock solution should be put in brown bottles and stored in the ice box. We have been able to make antiformin with a cost of only 10 cents per pint while the market price for the proprietary product is fifty cents.

Many physicians want to know all of the varieties of bacteria in the sputum. Bacteriologists have concluded that these findings are of little value because most of the sputum organisms were saprophytic mouth bacteria. The recent discovery that pneumococci ordinarily found in the mouth are not virulent seems to point more than ever to the lack of value of ordinary sputum bacterial findings outside of tubercle bacilli.



TABLE 6.

*Showing the Number of Specimens of Sputum Received From Each County  
October 1, 1915–October 1, 1916.*

County.	Posi- tive.	Nega- tive.	Total.	County.	Posi- tive.	Nega- tive.	Total.
Adams.....	7	18	25	Lawrence.....	21	53	74
Allen.....	255	104	359	Madison.....	110	203	313
Bartholomew.....	15	26	41	Marion.....	288	853	1,141
Benton.....	3	28	31	Marshall.....	16	33	49
Blackford.....	13	28	41	Martin.....	9	17	26
Boone.....	18	28	46	Miami.....	18	78	96
Brown.....	11	33	44	Monroe.....	19	47	66
Carroll.....	24	89	113	Montgomery.....	15	40	55
Cass.....	10	27	37	Morgan.....	8	21	29
Clark.....	11	23	34	Newton.....	1	8	9
Clay.....	16	45	61	Noble.....	11	41	52
Clinton.....	3	17	20	Ohio.....	1	18	19
Crawford.....	9	20	29	Orange.....	13	9	22
Davless.....	12	21	33	Owen.....	6	8	14
Dearborn.....	8	21	29	Parke.....	4	8	12
Decatur.....	5	22	27	Perry.....	17	36	53
Dekalb.....	31	71	102	Pike.....	3	9	12
Delaware.....	15	22	37	Porter.....	14	31	45
Dubois.....	38	89	127	Posey.....	11	37	48
Elkhart.....	19	40	59	Pulaski.....	10	20	30
Fayette.....	35	45	80	Putnam.....	16	27	43
Floyd.....	12	40	52	Randolph.....	16	10	26
Fountain.....	3	14	17	Ripley.....	25	58	83
Franklin.....	4	20	24	Rush.....	10	21	31
Fulton.....	23	32	55	Scott.....	14	28	42
Gibson.....	52	132	184	Shelby.....	8	19	27
Grant.....	18	44	62	Spencer.....	5	22	27
Greene.....	26	56	82	Starke.....	9	21	30
Hamilton.....	14	46	60	Steuben.....	10	44	54
Hancock.....	14	12	26	Sullivan.....	11	47	58
Harrison.....	16	39	55	Switzerland.....	11	6	17
Hendricks.....	22	50	72	Tippecanoe.....	34	76	110
Henry.....	27	75	102	Tipton.....	16	32	48
Howard.....	19	41	60	Union.....	14	6	20
Huntington.....	24	22	46	Vanderburg.....	62	80	142
Jackson.....	2	21	23	Vermillion.....	21	51	72
Jasper.....	24	39	63	Vigo.....	37	80	117
Jay.....	13	28	41	Wabash.....	14	70	84
Jefferson.....	5	15	20	Warren.....	10	15	25
Jennings.....	14	37	51	Warrick.....	6	17	23
Johnson.....	14	37	51	Washington.....	5	9	14
Knox.....	17	47	64	Wayne.....	35	61	96
Kosciusko.....	8	32	40	Wells.....	6	26	32
Lagrange.....	13	21	34	White.....	7	22	29
Lake.....	2	11	13	Whitley.....	8	23	31
Laporte.....							
Totals.....	914	1,729	2,643	Totals.....	1,012	2,431	3,443

TABLE 7.

*Showing Number of Sputum Specimens Examined for Tubercle Bacilli Each Month and Results.  
October 1, 1915–October 1, 1916.*

Month	Positive	Negative	Total
October	124	272	396
November	148	269	417
December	151	278	429
January	135	293	428
February	160	327	487
March	211	465	676
April	178	394	572
May	165	449	614
June	174	395	569
July	153	349	502
August	175	346	521
September	152	323	475
Total	1,926	4,160	6,086

TABLE 8.

*Showing Total Number of Sputum Specimens Examined Per Month.  
1908–1916.*

Month.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	Average Per Month.
October	252	295	312	336	383	364	372	396	...	338
November	222	290	353	318	357	337	322	417	...	327
December	275	261	383	352	401	346	313	429	...	345
January	246	276	273	437	381	444	410	377	428	363
February	208	268	329	435	371	407	392	478	487	375
March	292	374	458	368	459	367	490	567	676	540
April	292	315	351	354	462	430	513	470	572	417
May	308	291	363	391	496	442	474	433	614	424
June	308	297	363	378	415	412	556	433	569	415
July	321	302	383	255	407	375	427	367	502	371
August	264	270	325	274	365	390	412	366	521	353
September	284	273	271	288	326	276	326	432	475	328
Totals	3,272	3,512	4,164	4,186	4,823	4,590	5,007	5,165	4,844	
Average per month per year	273	393	347	349	402	383	417	430	538	

TABLE 9.

*Showing Specimens of Sputum Examined and Found Positive Each Month.  
1906-1916.*

Month.	Years.											Average Per Month.
	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	
October.....		70		87	66	114	97	102	74	74	124	90
November.....	60	59	66	81	71	86	87	71	76	76	148	80
December.....		46		72	78	77	68	78	84	59	59	70
January.....			62	92	70	82	97	95	78	57	135	85
February.....		71	60	56	82	73	76	89	88	81	160	84
March.....	51		83	74	107	87	92	61	108	95	211	97
April.....	83	54	77	74	111	99	93	93	99	99	178	96
May.....			87	72	113	121	122	80	118	118	165	111
June.....		100	82	73	102	122	114	102	146	140	174	116
July.....	87	80	108	100	93	124	113	110	138	118	153	111
August.....	51	75	80	71	116	155	100	102	96	129	175	105
September.....		76	82	77	96	133	80	102	91	144	152	103
Totals.....	331	631	859	937	1,204	1,264	1,149	1,091	1,171	1,190	1,926	
Average per month per year.....	28	52	72	78	100	105	96	91	98	99	161	

TABLE 10.

*Showing Percentage of Positive Sputums Per Month.  
1908-1916.*

Months.	Years.									Average per- cent.
	1908.	1903.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	
October.....	29	29	26	34	25	28	20	31	.....	28
November.....	30	28	21	27	21	21	24	35	.....	26
December.....	26	39	23	15	19	23	15	35	.....	23
January.....	25	33	26	23	25	21	19	15	31	24
February.....	29	21	25	28	21	21	22	17	33	24
March.....	28	20	23	30	29	19	22	17	31	23
April.....	26	23	32	35	20	21	26	21	31	26
May.....	28	25	30	40	25	15	25	27	27	27
June.....	27	25	31	35	27	24	26	32	31	29
July.....	34	33	33	26	28	29	32	32	34	32
August.....	30	26	35	26	27	27	23	35	34	29
September.....	29	28	35	27	24	27	28	33	32	29
Average per cent per year .....	31	27	28	29	23	23	24	28	32	

TABLE 11.

*Showing Percentage of Sputum Specimens Positive Per Year.  
1908-1916.*

<i>Years.</i>	<i>Percentage Positive.</i>
1908.....	31
1909.....	27
1910.....	28
1911.....	29
1912.....	23
1913.....	23
1914.....	24
1915.....	28
1916.....	32

TABLE 12.

*Showing Average Percentage Monthly Positive Sputums.  
1908-1916.*

<i>Month.</i>	<i>Percentage Positive.</i>
October.....	28
November.....	26
December.....	23
January.....	24
February.....	24
March.....	23
April.....	26
May.....	27
June.....	29
July.....	32
August.....	29
September.....	29

Table 13 shows some rather remarkable things. First the winter and spring months show the lowest number of sputums positive and the lowest percentage of positives. The month of March gives the greatest number of deaths from Pulmonary tuberculosis while June and July are the months that are nearest the bottom for tuberculocic deaths and yet give the highest number of positive sputums.

TABLE 13.

*Showing Average Monthly Per Cent of Sputums Found Positive, Average Number Sputums Found Positive Per Month and Average Total of Sputum Specimens Examined.  
1908-1916.*

Month.	Average per cent. Positive.	Average number Positive.	Average Total Examined.
October.....	28	90	338
November.....	26	80	327
December.....	23	70	345
January.....	24	85	363
February.....	24	84	375
March.....	23	97	540
April.....	26	96	417
May.....	27	111	424
June.....	29	116	415
July.....	32	111	371
August.....	29	105	353
September.....	29	103	328

### DIPHTHERIA.

There is no disease so easily controlled by laboratory methods as diphtheria. Every year beginning with the middle of September there is a great increase of diphtheria specimens sent to the laboratory. A large part of them come from school children and are often the first cases in a severe epidemic.

Since the introduction of antitoxin there has been a considerable decrease in the mortality from diphtheria but the total number of cases seems to have increased.

Diphtheria is a disease spread mostly by direct contact, viz.: by droplet infection, by hand coming in contact with object just handled by a patient infected with diphtheria. One great source of infection in addition to those suffering from the disease is atypical cases and contact cases.

#### MODES OF PREVENTION OF DIPHTHERIA.

1. Bacteriological examination of all suspected cases.
2. Bacteriological examination of all persons coming in contact with a case.
3. Isolation of sick, preferably in special hospitals.
4. Release of patient and family after one or more negative cultures from all the family.
5. Bacteriological examination of all school children in a community where diphtheria is present.

Table "A" shows that the Bacteriological Laboratory of the State Board of Health is handicapped in its fight against diphtheria on account of a lack of co-operation of the doctors and health officers.

During the year 1915, the number of cases of diphtheria reported by the local health officers was 2,946. This laboratory made a positive diagnosis in 473 cases or 16% of the total number of cases reported. Of the 2,946 cases reported 297 died of diphtheria leaving 2,649 cases to be released after negative bacteriological findings. Of our 473 positive diagnosis cultures only 179 or 7% were released on a final negative culture. Nose and throat signs of diphtheria usually disappear in from seven to fourteen days following the administration of antitoxin.

Our records show that diphtheria bacilli disappear from the nose and throat of 63% of clinical cases of diphtheria in two weeks; in 82% in 3 weeks; in 90.5% in 4 weeks; in 96% in 5 weeks; in 98% in 7 weeks and in 99% in 10 weeks.

These figures show very plainly why we are not controlling diphtheria in Indiana. Much of the lack of co-operation of doctors is due to their confidence in the power to control the symptoms of the disease once they become evident. There is no realization of the harmful effect of diphtheria toxin on the human body even if the child survives the attack. We must concentrate our efforts more on prevention than heretofore if we expect to eradicate diphtheria.

#### DIPHTHERIA EPIDEMICS AND DIPHTHERIA CARRIERS.

From the beginning of bacteriological examination of throats it has been found that although diphtheria bacilli were the etiological factors, many persons harbor these bacilli without showing any symptoms of the disease. These persons are called "bacilli carriers" and are the most important single factor in the spread of diphtheria. The following leaflet of instruction and advise is sent to the local health officer where there are any school children with diphtheria.

## INDIANA STATE BOARD OF HEALTH

## DIPHTHERIA EPIDEMICS AND DIPHTHERIA CARRIERS.

Inspection of the throats of school children is at all times important, and in the presence of an epidemic of diphtheria is absolutely necessary. The examination should consist, first of an inspection of the throat and nose for clinical signs of disease, and second, of swabbing the throat to obtain material for making a bacteriological examination to determine if diphtheria bacilli are present. During an epidemic of diphtheria many children have diphtheria bacilli in their throats without showing signs of being sick. These children are called "bacilli carriers," and this fact is an argument for medical inspection of schools.

The Indiana Sanitary School House Law, Section 2, commands medical inspection under certain circumstances in the following words:

"Whenever diphtheria, scarlet fever or any other contagious or infectious disease breaks out in any school it shall be the duty of the township trustee, school board, school trustee, or the school authority or authorities having control, to have medical inspection made of the pupils and all found in any degree ill shall be sent home and retained there until the local health officer gives a certificate of health, then such child may again be admitted to school. \* \* \* Any trustee or school authority who fails or neglects to have medical inspection as provided above is liable to a fine of not less than ten nor more than one hundred dollars, and each said refusal or neglect shall constitute a separate offense."

The rule of the Indiana State Board of Health governing quarantine in diphtheria is as follows:

For the patient, quarantine until the secretions from the nose and throat are free from diphtheria infection as shown by bacteriological examination of such secretions. For children associated with or in the family with the patient, quarantine until death or recovery of the patient and disinfection of person, clothing and premises: Provided, That other children of the family who shall receive an immunizing dose of antitoxin of not less than 1,000 units may be released from quarantine at the discretion of the health officer having the jurisdiction, after disinfection of person and clothing. The patient shall be excluded from school until a medical certificate that the nose and throat are free from disinfection, based upon bacteriological examination, is furnished. Children associated with or in the family of the patient shall be excluded from school for seven (7) days after release from quarantine unless a medical certificate of having received an immunizing dose of not less than 1,000 units of antitoxin is furnished. Adult members of the family

may be released from quarantine on the condition that they be disinfected in person and apparel and remain away during the quarantine period.

In addition to the rule given above governing quarantine and exclusion from school, the Indiana State Board of Health recommends the following measures for the detection and control of diphtheria carriers during an epidemic of diphtheria in any school.

Measure 1. Whenever there is an outbreak of diphtheria in any school, the throat and nose of every pupil and teacher and any other person in such school should be inspected and mucus taken on a sterile swab for bacteriological examination.

All children found by inspection to have sore throat or slight or severe cold should be sent home immediately and not allowed to return to school until it is proven by bacteriological examination that they do not have diphtheria bacilli in their throats. Every child not having sore throat or cold should remain at school unless bacteriological examination shows them to be diphtheria "bacilli carriers."

Measure 2. If the epidemic is extensive, immunizing doses of not less than 1,000 units of diphtheria antitoxin may be given to all well children and the building disinfected with formaldehyde, according to the rules.

Measure 3. The diphtheria carrier, rather than the premises, should be quarantined. It is not necessary to quarantine members of the family who do not come in direct contact with the carrier. Isolation of the carrier from the rest of the family must be complete, a nurse or attendant being provided. The regular diphtheria quarantine card may be dispensed with, the following card being sufficient:

<p>CARRIER OF DIPHTHERIA HERE, KEEP OUT.</p>
----------------------------------------------

Measure 4. Spray the nose and throat of the diphtheria carrier with an antiseptic such as hydrogen peroxide, 5 per cent solution, Seiler's solution or Doe-Bells solution. These antiseptics may be used as a gargle. The local application to the throat of 5 per cent solution of silver nitrate, tincture of iodine or five per cent solution of guaiacol in glycerine are sometimes necessary in persistent cases.



**Measure 5.** Schools should not be closed unless the epidemic is wide-spread or the attendance does not justify continuing them, for it makes the detection of mild cases and carriers of diphtheria very difficult. Children should be forbidden to attend church or visit public amusement places. Social gatherings or parties for children should not be permitted.

The bacteriological laboratory of the Indiana State Board of Health is prepared to make bacteriological examination of all swab-bings from the noses and throats of children suspected of carrying diphtheria bacilli, and will furnish the necessary outfits, free of charge upon application.

By following the above recommendation, epidemics of diphtheria may be controlled from the beginning and without interfering with the work of the school.

It is now known that the diphtheria (Klebs Loeffler) bacillus may remain for a considerable time in the noses and throats of persons who have recovered from diphtheria. In some cases the bacilli have been found for five and seven weeks and in one case on record, for twenty-three weeks after the attack. It is also known that diphtheria bacilli may often be found in the throats of persons who do not have and who never have had the disease. This is especially true when diphtheria is prevalent in a community. While the bacilli under such conditions do not produce the disease in the "carrier," when transferred to other persons they may produce diphtheria in a most virulent form. It is certain that diphtheria has been kept alive for months in schools and institutions by means of such "carriers," and it is quite probable that unrecognized carriers with only a "slight sore throat" are the source of more cases of diphtheria than persons having well marked and recognized cases of the disease.

It has been shown by the examination of a large number of cases that when diphtheria is present in a community, from 5 to 10 per cent of the persons in that community are "bacilli carriers." On account of the greater exposure of children in schools, the promotion of carriers among such children would naturally be higher than among the population in general. The report of the State Laboratory of Hygiene shows 7,137 cultures taken from the throats of school children in schools where one or more cases of diphtheria had occurred. Of this number, 165 were positive proving that at least 2 per cent of the children in these schools were "bacilli carriers."

J. N. HURTY,  
Secretary.

## DUTIES OF HEALTH OFFICERS, PHYSICIANS AND CITIZENS.

It is a moral and a legal duty for physicians to report all cases of diphtheria and all other cases of infectious disease which may come under their care, to the health authorities. Sometimes householders request their doctors not to report the fact if diphtheria occurs in their houses. Such persons have seemingly never heard of the golden rule. Such persons are worse than incendiaries. Destroyed property may be rebuilt, but a destroyed life can not be restored. The doctor and the family which join to conceal a case of diphtheria are enemies to themselves and to others,

Health officers are commanded by the law to quarantine all cases of diphtheria of which they may have knowledge: "In such manner and for such time as may be necessary to prevent the spread of infection." The quarantine orders of the health officer are law and must be obeyed. The fine for violation in the statute is not less than ten nor more than fifty dollars.

## RULES GOVERNING QUARANTINE.

(THE FINE IN THE STATUTE FOR VIOLATION OF THESE RULES IS TEN TO FIFTY DOLLARS.)

Rule 10.—INFECTIOUS DISEASES—The infectious and contagious diseases which shall be immediately reported to the health officer having jurisdiction and which shall be quarantined are hereby declared to be: Yellow fever, smallpox, cholera, diphtheria, membranous croup, scarlet fever, measles, epidemic poliomyelitis, cerebro-spinal fever, typhus fever, bubonic plague, leprosy, pulmonary consumption, typhoid fever, chickenpox, whooping cough, trachoma, syphilis and gonorrhea.

*Provided*, pulmonary consumption, typhoid fever, syphilis and gonorrhea shall not be quarantined as they are to be reported for record and statistical purposes only, and chickenpox, whooping cough, measles and trachoma shall be carded to warn the public, absolute quarantine not being required; and *provided further*, when a case of trachoma is under approved treatment, as it would not then be transferable, said case shall not be carded, and shall not be excluded from school.

Rule 11.—Health officers, upon learning in any way of the existence of any disease listed in Rule 10, within their respective

areas, shall immediately, in person or by deputy, quarantine the infected house, rooms, or premises, so as to effectually isolate the case, or cases, and the family, if necessary, *in such manner and for such time as may be necessary to prevent transmission of the disease*; and whenever a quarantine is established a placard shall be posted in a conspicuous position, giving the name of the disease in letters not less than two inches long, and also having upon the card the following notice:

*"All persons are forbidden to enter or leave these premises without special permit from the health officer having jurisdiction, and all persons are forbidden to remove or mutilate this card, or to interfere in any way with the quarantine without orders from said health officer."*

It shall be unlawful to violate a quarantine, either by entering or leaving the quarantined area or to demolish or tear away the ropes or other marks whereby the boundaries of a quarantine are defined, and whoever tears down, obscures, destroys, mutilates or defaces a quarantine placard, or who violates a quarantine in any way whatsoever, except by permission or direction of the health officer having jurisdiction, shall suffer the penalty prescribed in Section 3 of Chapter LXXXIII of the Acts of 1903, to wit: "A fine of ten to fifty dollars, to which may be added imprisonment in the county jail not exceeding six months."

Rule 13.—It shall be unlawful for any person other than licensed physicians, undertakers or nurses to enter or leave any house or building infected with any communicable disease listed in Rule 10, without first procuring permission from the health officer having jurisdiction, and obeying absolutely his directions as to all sanitary precautions which he orders.

Rule 14.—It shall be unlawful for any person who is, or has been recently affected with any communicable disease listed in Rule 10 (omitting pulmonary tuberculosis and typhoid fever), to travel in railway or trolley cars or appear upon the streets or highways, or to appear in any public place or gathering, or to travel in any public vehicle or vessel, until a certificate is issued by the attending physician to the health officer within whose jurisdiction the case occurs, stating that all danger from infection or contagion by reason of such disease is passed, and such certificate is approved and endorsed by said health officer.

Rule 15.—Whenever a health officer shall know or suspect or be informed of the existence of any communicable disease dangerous to the public health, and there be no licensed physician

in attendance, or should said physician while in attendance fail or refuse to immediately report such case to the health officer, it shall be the duty of said health officer, or deputy, to examine such case or cases of alleged communicable disease dangerous to the public health, and act as required by the rules governing such cases of communicable disease.

Be sure that all births, deaths and contagious diseases occurring in your family are reported to the health officer. If legal complications should occur you would be hurt in court without a legal record.

One of the greatest difficulties is to cure chronic bacilli carriers. Almost every kind of local treatment has been tried. At this time complete removal of the tonsils seems to be almost specific in its effect, the bacilli completely disappearing in from 7 to 14 days following the operation.

The following history shows conclusively the danger of not taking a carrier seriously:

"A child had tonsillitis February, 1916. The usual remedies did not effect a cure. Another physician was called in consultation and suggested sending a swab to the State Laboratory to be examined for diphtheria bacilli, which was done and was found to contain the bacilli. The child was given a small dose of antitoxin and recovered promptly.

Cultures were sent in for release from quarantine. After three weeks cultures were still coming back positive. The parents became restless and the doctor peevish because a mild case of tonsillitis was giving so much trouble. The city health officer came to the State Laboratory and made a vigorous protest against the positive findings and intimated that he was going to send the child back to school, positive or no positive. We explained to him that there was probably some pathological condition about the nose, tonsils, adenoid or teeth which was the source of the diphtheria bacilli and urged him to have the nose and throat man see the patient. This was not done. In a day or two a culture was sent in from this child in which no diphtheria bacilli were found and the child was allowed to return to school. Ten days later the school inspector of the town wrote for a diphtheria epidemic outfit for school inspection to take throat cultures from all of the children in the school room where this diphtheria bacilli carrier attended school. We found 7 children who had diphtheria bacilli, one of which was our little friend the diphtheria bacilli carrier. We are now getting many throat cultures from Richmond and the end is not yet in sight.

We are finding a good many chronic diphtheria bacilli carriers.

The usual remedy for ridding a diphtheria bacilli carrier of his parasites is to use antiseptic washes, antiseptic lotions to the throat, spraying the throat with living cultures of staphylococci and injections of antitoxin. In many cases all of these measures are failures. One is not surprised that this is true because the primary focus of infection is not on the surface of the mucus membrane of the nose and throat but is in the crypts of the tonsils, around the adenoid tissue, in the sinuses about the nose or in the decayed teeth."

TABLE 13A.

*Diphtheria Cultures for Release From Quarantine.  
October 1, 1915–October 1, 1916.*

Week	Cultures for Release received.	Per cent.
1st week . . . . .	46	25.7
2nd week . . . . .	67	63.13
3rd week . . . . .	34	82.12
4th week . . . . .	15	90.5
5th week . . . . .	10	96.1
6th and 7th weeks . . . . .	4	98.
8th and 9th weeks . . . . .	2	99.
10th week . . . . .	1	99.4
Total . . . . .	179	37.8
Positive cases diagnosed by laboratory during 10 weeks . . . . .		473
Release cultures received on these cases . . . . .		179
Cases released without negative cultures . . . . .		294

TABLE 14.

*Showing Number of Throat Cultures Examined by Counties.  
October 1, 1915–October 1, 1916.*

County.	Posi- tive.	Nega- tive.	Total.	County.	Posi- tive.	Nega- tive.	Total.
Adams.....	10	10	20	Lawrence.....	14	11	25
Allen.....				Madison.....	14	34	48
Bartholomew.....	2	12	14	Marion.....	68	295	363
Benton.....	3	9	12	Marshall.....	30	58	88
Blackford.....	19	35	54	Martin.....	5	5	10
Boone.....	2	9	11	Miami.....	9	45	54
Brown.....		1	1	Monroe.....	13	50	63
Carroll.....	9	22	31	Montgomery.....	2	10	12
Cass.....	35	79	114	Morgan.....	2	5	7
Clark.....		1	1	Newton.....	5	64	69
Clay.....	13	13	26	Noble.....	6	32	38
Clinton.....	19	19	38	Ohio.....			
Crawford.....	2	2	4	Orange.....	10	13	23
Davies.....	4	8	12	Owen.....		2	2
Dearborn.....	13	35	48	Parke.....	7	10	17
Decatur.....	2	9	11	Perry.....	2	4	6
Dekalb.....	11	28	39	Pike.....	12	23	35
Delaware.....	5	38	43	Porter.....		5	5
Dubois.....	4	14	18	Posey.....	52	62	114
Elkhart.....	34	47	81	Pulaski.....	2	3	5
Fayette.....	66	86	152	Putnam.....	2	6	8
Floyd.....	9	7	16	Randolph.....		12	12
Fountain.....	7	16	23	Ripley.....	3	13	16
Franklin.....	8	19	27	Rush.....		6	6
Fulton.....		5	5	Scott.....	2	4	6
Gibson.....	15	24	39	Shelby.....	36	79	115
Grant.....	90	183	273	Spencer.....	11	18	29
Greene.....	13	37	50	Starke.....			
Hamilton.....	7	15	22	Steuben.....			
Hancock.....	2	6	8	St. Joseph.....	35	45	80
Harrison.....	9	17	26	Sullivan.....	15	23	38
Hendricks.....	23	95	118	Switzerland.....			
Henry.....	8	24	32	Tippecanoe.....	3	16	19
Howard.....	143	264	407	Tipton.....	9	11	20
Huntington.....		7	7	Union.....	10	30	40
Jackson.....	22	50	72	Vanderburg.....	1	5	6
Jasper.....	1	2	3	Vermillion.....	14	10	24
Jay.....	18	23	41	Vigo.....	49	113	162
Jefferson.....	21	69	90	Wabash.....	6	22	28
Jennings.....	3	20	23	Warren.....	1	2	3
Johnson.....	59	109	168	Warrick.....			
Knox.....	10	16	26	Washington.....		2	2
Kosciusko.....	15	43	58	Wayne.....	75	182	257
Lagrange.....		7	7	Wells.....		1	1
Lake.....	25	27	52	White.....	11	19	30
LaPorte.....	22	35	57	Whitley.....	2	2	4
Totals.....	773	1,606	2,379	Totals.....	538	1,352	1,890

TABLE 14A.

Month.	Cases reported.	Positive Diphtheria Diagnosis by Laboratory.	Deaths.
January . . . . .	300	77	33
February . . . . .	251	64	30
March . . . . .	187	90	20
April . . . . .	126	25	14
May . . . . .	104	23	9
June . . . . .	71	21	11
July . . . . .	101	23	17
August . . . . .	124	27	8
September . . . . .	269	55	24
October . . . . .	543	147	43
November . . . . .	553	240	43
December . . . . .	317	204	45
Totals . . . . .	2,946	996	297

TABLE 15.

*Showing Diphtheria Specimens by Months.  
October 1, 1915-October 1, 1916.*

Month.	Regular.			Epidemic.		
	Positive.	Negative.	Total.	Positive.	Negative.	Total.
October . . . . .	147	466	613	24	1,788	1,812
November . . . . .	240	449	689	43	1,329	1,372
December . . . . .	204	424	628	47	1,439	1,486
January . . . . .	105	253	358	.....	8	8
February . . . . .	120	287	407	40	408	448
March . . . . .	133	229	362	16	101	117
April . . . . .	65	147	212	.....	.....	.....
May . . . . .	51	189	240	.....	.....	.....
June . . . . .	43	136	179	.....	.....	.....
July . . . . .	37	112	149	.....	.....	.....
August . . . . .	43	83	126	.....	.....	.....
September . . . . .	123	183	306	20	462	482
Totals . . . . .	1,311	2,958	4,269	190	3,535	5,725

NOTE.—Potassium tellurate examinations were also made on 2,128 of the diphtheria cultures which would make a total of 24,140 diphtheria examinations.

TABLE 16.  
Showing Total Number Diphtheria Specimens Examined.  
1906-1916.

Month.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	Average per Month.
October .....		115	965	321	652	2,861	986	987	914	613		935
November .....	150	483	451	421	318	2,650	1,251	1,132	660	689		821
December .....	63	225	156	315	236	1,204	1,035	767	443	628		507
January .....		59	99	154	151	209	246	847	538	340	358	300
February .....		31	78	113	131	130	237	604	449	268	407	245
March .....		45	55	57	214	123	192	274	414	352	262	209
April .....		28	46	22	54	87	171	182	189	159	212	115
May .....		25	44	40	117	77	207	131	175	97	240	115
June .....		25	38	19	68	58	97	127	117	115	179	84
July .....		37	19	16	57	80	94	123	138	108	149	82
August .....		13		58	36	233	109	165	154	105	126	111
September .....		43	692	98	92	249	389	336	254	211	306	267
Totals .....	213	1,129	2,643	1,634	2,119	7,961	5,014	5,675	4,445	3,685	2,339	
Average per month per year .....	107	94	220	136	177	663	418	473	370	307	260	

Note—Potassium tellurate examinations were also made on 2,128 of the diphtheria cultures which would make a total of 24,140 diphtheria examinations.

TABLE 17.  
Diphtheria Specimens Found Positive.  
1906-1916.

Month.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	Average per Month.
October .....		80	451	83	175	773	309	400	192	147		290
November .....	70	267	125	122	120	520	406	499	162	240		253
December .....	30	107	38	96	91	159	332	228	126	204		141
January .....		18	28	31	32	67	37	169	177	77	105	74
February .....		7	45	27	26	33	31	198	183	64	120	73
March .....		20	17	15	41	36	17	79	91	90	133	54
April .....		11	14	14	3	32	29	29	42	25	65	26
May .....		13	22	8	40	25	24	29	63	23	51	30
June .....		27	7	2	15	24	17	45	55	23	43	26
July .....		15	24	5	23	13	13	47	23	21	37	22
August .....		8		29	18	57	15	42	64	27	43	30
September .....		38	128	49	35	128	126	156	132	55	143	99
Totals .....	100	611	899	481	619	1,867	1,356	1,921	1,309	996	740	
Average per month per year .....	50	51	75	40	52	156	113	160	109	83	82	



TABLE 18.  
Showing Percentage Positive of Diphtherias.  
1906-1916.

Month.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	Average per Month.
October.....		70	46	25	26	27	31	40	21	27	.....	35
November.....	46	55	27	28	37	20	32	44	25	40	.....	35
December.....	50	50	24	30	34	13	30	30	28	33	.....	32
January.....		30	30	20	34	30	15	11	33	23	36	26
February.....		22	57	23	20	25	13	30	41	24	31	29
March.....		44	39	22	20	30	9	30	22	25	39	28
April.....		40	30	63	5	36	16	16	22	16	33	28
May.....		50	50	20	34	33	11	22	35	24	23	30
June.....		60	63	26	33	22	13	37	20	18	24	32
July.....		74	43	12	26	30	18	36	40	21	28	33
August.....		63	.....	60	47	24	13	25	42	26	39	33
September.....		88	18	50	38	50	32	46	52	26	21	42
Average percent. positive per year.	48	54	36	30	30	28	19	31	32	25	30	

TABLE 19.  
Showing Average Percent of Diphtheria Positive.  
1906-1916.

Month.	Average Percent Positive.
October.....	35
November.....	35
December.....	32
January.....	26
February.....	29
March.....	28
April.....	28
May.....	30
June.....	32
July.....	33
August.....	33
September.....	42

TABLE 20.  
Showing Percentage of Diphtheria Positive by Years.  
1906-1916.

Year.	Regular.	Epidemic.
	Percentage Positive	Percentage Positive
1906.....	48	..
1907.....	54	..
1908.....	36	..
1909.....	30	..
1910.....	30	..
1911.....	28	..
1912.....	19	..
1913.....	31	11
1914.....	32	9
1915.....	25	2
1916.....	30	3

## TYPHOID FEVER.

Table 21 shows the positive and negative specimens of blood examined each month. A striking fact that although August has the greatest number of positive specimens, September has an equal per cent of positives. The per cent positive for 1916 is the same as that for 1915, viz., 18 %.

The standard of examination is the same as that used during the previous years, that is Wilson's. "All bacilli must be completely immobilized and practically all of them drawn from the edge and collected in a large clump." This rigid standard will eliminate all pseudo-reactions but will also miss some real cases of typhoid. As a matter of experience it has been found that complete immobility and partial agglutination can be called positive if the clinical symptoms are those of typhoid fever. We are still receiving a few criticisms on our Widal outfits but they are getting fewer and fewer as physicians learn better how to use them.

In any prevention of typhoid fever the family physician must play a very important part. If they do not understand how typhoid fever is transmitted and give no instructions as to how to prevent more than one case in a family the number of cases due to direct contact will be increased enormously.

To obtain reliable information as to the source of typhoid infection the following card with an addressed stamped envelope has been sent out with each positive Widal report:

## INDIANA STATE BOARD OF HEALTH.

*Division of Pathology and Bacteriology.*

Room 202 Gallup Building.

Day.....Month.....19..  
 Patient's name.....  
 Occupation.....  
 Exact address.....  
 Date of earliest symptoms.....  
 Milk used by patient.....  
 Name of dairy.....  
 Water used by patient.....Well.....City.....

(Back)

Have there been any previous cases of typhoid, influenza, gastric catarrh, diarrhea or neurasthenia in the patient's family within the past year or two?.....  
 Has the patient been away from home within the last 15 days?.....

If so, where?.....  
 How do you think your patient was infected with typhoid fever?.....  
 Physician's name.....  
 Address.....  
 City..... Town.....

Enclosed you will find stamped envelope for returning this information.

Many of the doctors reports on these cards give well water and milk as the source of infection. In most of these cases the doctor has not a bit of evidence to prove his assertion. There is very little idea of the way by which the typhoid bacilli got into the milk or water.

In a few instances the persons sick were in a dairyman's family. Often the cases had not been reported to the local health officer and nothing had been done to prevent the infection through the milk. A great many cases were contacts occurring in the same family. The replies in some instances mention other previous cases so that an epidemic of typhoid came to our notice in this way.

In every instance in which the doctor's reply was unsatisfactory we asked for additional information which set the doctor to thinking and developed his knowledge of the method of the spread of typhoid bacilli.

TABLE 21.

*Showing Number of Blood Specimens From Each County Examined for Widal Reaction.*

*October 1, 1915–October 1, 1916.*

County.	Posi- tive.	Nega- tive.	Total.	County.	Posi- tive.	Nega- tive.	Total.
Adams . . . . .		2	2	Lawrence . . . . .	3	21	24
Allen . . . . .	1	8	9	Madison . . . . .	19	67	86
Bartholomew . . . . .		2	2	Marion . . . . .	70	338	408
Benton . . . . .	2	18	20	Marshall . . . . .	2	9	11
Blackford . . . . .		5	5	Martin . . . . .			
Boone . . . . .	2	16	18	Miami . . . . .	6	23	29
Brown . . . . .				Monroe . . . . .	5	35	40
Carroll . . . . .	2	20	22	Montgomery . . . . .	4	9	13
Cass . . . . .	9	31	40	Morgan . . . . .	1	7	8
Clark . . . . .	1	4	5	Newton . . . . .	1	8	9
Clay . . . . .	3	2	5	Noble . . . . .	2	17	19
Clinton . . . . .	3	19	22	Ohio . . . . .			
Crawford . . . . .				Orange . . . . .	2	14	16
Davless . . . . .				Owen . . . . .	1	9	10
Dearborn . . . . .	1	6	7	Parke . . . . .	3	6	9
Decatur . . . . .	4	10	14	Perry . . . . .	4	11	15
DeKalb . . . . .	1	8	9	Pike . . . . .	3	8	11
Delaware . . . . .	5	37	42	Porter . . . . .	1	24	25
Dubois . . . . .		2	2	Posey . . . . .	5	23	28
Elkhart . . . . .	6	26	32	Pu. aski . . . . .	3	9	12
Fayette . . . . .	4	7	11	Putnam . . . . .		3	3
Floyd . . . . .	2	14	16	Randolph . . . . .	8	30	38
Fountain . . . . .	2	9	11	Ripley . . . . .		6	6
Franklin . . . . .		8	8	Rush . . . . .	11	31	42
Fulton . . . . .	1	8	9	Scott . . . . .		1	1
Gibson . . . . .	3	18	21	Shelby . . . . .	3	16	19
Grant . . . . .	6	31	37	Spencer . . . . .	10	26	36
Greene . . . . .		10	10	Starke . . . . .			1
Hamilton . . . . .	4	26	30	Stauben . . . . .	1	6	7
Hancock . . . . .		13	13	St. Joseph . . . . .	3	4	7
Harrison . . . . .		4	4	Sullivan . . . . .	11	24	35
Hendricks . . . . .	7	11	18	Switzerland . . . . .			
Henry . . . . .	4	31	35	Tippecanoe . . . . .	12	57	69
Howard . . . . .	6	20	26	Tipton . . . . .	5	21	26
Huntington . . . . .	3	6	9	Union . . . . .	1	3	4
Jackson . . . . .	2	9	11	Vanderburg . . . . .	13	61	74
Jasper . . . . .	1	1	2	Vermillion . . . . .	2	5	7
Jay . . . . .		4	4	Vigo . . . . .	5	14	19
Jefferson . . . . .	1	9	10	Wabash . . . . .		17	17
Jennings . . . . .	4	12	16	Warren . . . . .	1	2	3
Johnson . . . . .	6	18	24	Warrick . . . . .		9	9
Knox . . . . .	10	18	28	Washington . . . . .	2	3	5
Kosciusko . . . . .	4	14	18	Wayne . . . . .	8	59	67
Lagrange . . . . .		10	10	Wells . . . . .		3	3
Lake . . . . .	1	9	10	White . . . . .	4	24	28
LaPorte . . . . .		5	5	Whitley . . . . .	1	2	3
Totals . . . . .	111	541	652	Totals . . . . .	237	1,065	1,302

TABLE 22

*Showing Number of Specimens of Blood Examined for Widal Reaction  
Each Month.*

*October 1, 1915–October 1, 1916.*

Month.	Positive.	Negative.	Total.
October.....	35	118	153
November.....	24	95	119
December.....	38	86	124
January.....	17	61	78
February.....	21	81	102
March.....	18	96	114
April.....	6	55	61
May.....	12	91	103
June.....	12	92	104
July.....	24	153	177
August.....	77	372	449
September.....	64	306	370
Totals.....	348	1,606	1,954

TABLE 23.

*Showing Total Number of Blood Specimens for Typhoid Widal.  
1906–1916.*

Month.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	Average Per Month.
October.....	96	116	140	150	217	156	196	239	227	153	.....	169
November.....	68	68	159	115	133	115	87	121	175	119	.....	116
December.....	28	47	116	61	66	106	65	91	101	124	.....	81
January.....	24	47	68	74	63	75	77	47	72	79	.....	78
February.....	10	58	45	64	66	69	74	46	65	91	.....	102
March.....	15	40	61	75	94	78	67	33	88	64	.....	114
April.....	47	45	51	64	78	69	66	73	68	86	.....	61
May.....	13	21	60	66	92	86	80	110	93	92	.....	103
June.....	16	27	77	70	81	85	82	75	123	79	.....	104
July.....	43	84	132	132	128	143	132	191	178	151	.....	177
August.....	104	126	280	289	294	275	244	303	257	222	.....	449
September.....	131	143	266	269	328	194	329	280	208	216	.....	370
Totals.....	595	822	1,444	1,409	1,640	1,471	1,499	1,609	1,655	1,476	1,558	
Average per month per year.....	49	79	120	117	136	123	125	134	138	123	173	

TABLE 24.

*Showing Number of Widal Specimens Positive Per Month.  
1906-1916.*

Month.	1906.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	Average Per Month.
October.....	48	48	91	15	24	15	33	94	61	35	.....	47
November.....	31	41	100	8	10	4	7	30	52	24	.....	30
December.....	17	28	93	3	4	5	5	9	18	38	.....	22
January.....	18	30	33	5	1	6	1	4	8	17	17	13
February.....	8	35	19	2	1	.....	2	4	15	11	21	10
March.....	14	8	23	9	5	2	3	1	18	14	18	11
April.....	42	17	17	10	5	.....	1	1	13	12	6	11
May.....	13	5	21	5	10	6	2	11	3	14	12	9
June.....	11	8	23	4	8	5	1	8	7	3	12	8
July.....	34	31	45	20	11	10	5	33	23	15	24	23
August.....	67	13	125	39	39	24	39	64	52	30	77	52
September.....	39	30	108	35	55	9	35	75	66	32	64	50
Totals.....	342	294	698	155	173	80	134	334	336	245	251	.....
Average per month per year.....	28	25	58	13	14	7	11	28	28	20	28	.....

TABLE 25.

*Showing Percentage of Widal Specimens Positive Per Year.  
1906-1916.*

Year	Percent.
1906.....	57
1907.....	35
1908.....	48
1909.....	19
1910.....	11
1911.....	5
1912.....	9
1913.....	17
1914.....	32
1915.....	18
1916.....	18

TABLE 26.

*Showing Average Percent Monthly Positive Widal.  
1906-1916.*

<i>Month.</i>	<i>Percent.</i>
October.....	31
November.....	24
December.....	21
January.....	15
February.....	19
March.....	18
April.....	18
May.....	20
June.....	30
July.....	15
August.....	19
September.....	23

### PARATHYPHOID.

Of 996 blood specimens examined for typhoid and paratyphoid reaction 165 or 17% gave a positive typhoid Widal and 23 or 2-3/10% gave a positive paratyphoid reaction.

Thus it seems that one out of every ten positive cases of typhoid is really a paratyphoid B. infection. According to the best authorities 33% of all cases of paratyphoid infections resemble typhoid.

The average number of deaths from typhoid in Indiana for the last ten years is 814. If this represents the 10% of total number of cases there must have been 8,140 cases. Of these 814 or 10% represent the number of paratyphoid cases. There is likely some error here for paratyphoid is not fatal in such high percentage as typhoid. If 814 is 33-1/3% of the total number of cases then there must have been 2,452 cases of paratyphoid B. infection in Indiana. 2,452 is not too high a figure because paratyphoid infections are very common. It seems fairly certain that the number of cases of typhoid diagnosed by the doctors does not represent more than 10% of the cases actually infected with typhoid so that it is possible that instead of there being 8,140 cases there are really 81,400 typhoid infections each year. Even with that large number it takes almost 40 years for everybody in Indiana to be infected with typhoid in some degree.

TABLE 27.

*Showing Widal Examinations for Typhoid and Paratyphoid.  
October 1, 1915–October 1, 1916.*

Month.	Paratyphoid.			Typhoid.			Per cent
	Positive	Negative.	Total.	Positive.	Negative.	Total.	
October.....		8	8	35	118	153	23
November.....		2	2	24	95	119	20
December.....	4	108	112	38	86	124	31
January.....		23	23	17	61	78	22
February.....		5	5	21	81	102	21
March.....		1	1	18	96	114	16
April.....		1	1	6	55	61	10
May.....	1	2	3	12	91	103	12
June.....	1	87	88	12	92	104	12
July.....		177	177	24	153	177	14
August.....	9	440	449	77	372	449	17
September.....	14	356	370	64	306	370	17
Totals.....	29	1,210	1,239	348	1,606	1,954	18

TABLE 28.

*Showing Number of Specimens of Blood for Paratyphoid Widal Examined  
Each Month.*

*October 1, 1915–October 1, 1916.*

Month.	Positive.	Negative.	Total.
October.....		8	8
November.....		2	2
December.....	4	108	112
January.....		23	23
February.....		5	5
March.....		1	1
April.....		1	1
May.....	1	2	3
June.....	1	87	88
July.....		177	177
August.....	9	440	449
September.....	14	356	370
Totals.....	29	1,210	1,239



TABLE 29.

*Showing Number of Specimens of Feces Examined for Typhoid Bacilli  
by Months with Results.*

*October 1, 1915–October 1, 1916.*

<i>Months.</i>	<i>Positive.</i>	<i>Negative.</i>
October.....	..	5
November.....	..	3
December.....	..	..
January.....	..	1
February.....	..	1
March.....	..	3
April.....	..	..
May.....	..	2
June.....	..	2
July.....	..	3
August.....	..	8
September.....	..	8
Totals.....	..	36

### URINE EXAMINATIONS.

Table 30 shows that 531 urine examinations were made during the year. 36 of this number really belonged to the laboratory. 494 miscellaneous specimens were sent in and most of them were so old and alkaline that had there been any casts present when voided, they would have all been destroyed by the alkalinity. The presence of albumin is of little significance since the urine in many cases contained considerable pus which gives off into the urine albumin.

We have had considerable success in finding tubercle bacilli in the urine. We advise the doctors to collect a 24 hour quantity of urine, allow to set for 24 hours after collection, pour off the supernatant fluid and send us the residue. This residue is digested with antiformin, stained and examined for tubercle bacilli just as carefully as sputum. If acid fast bacilli are found we then ask for a catheterized specimen in a sterile bottle. If there is no mixed infection the sediment from 50 cc. of urine is injected into the peritoneal cavity of a guinea pig; if there is a mixed infection the sediment is first treated with antiformin and centrifugated, washed and the remaining residue injected into a guinea pig. It seems that there must be at least 15 bovine tubercle bacilli present in any injection to produce tuberculosis in a guinea pig

and it takes about six weeks for the disease to develop. Recently some experiments have been made which seem to have shortened the time and lessened the number of tubercle bacilli necessary to produce tuberculosis by exposing the abdominal region of a guinea pig just before or after injection. X-rayed pigs develop the disease in about 14 days.

TABLE 30.

*Showing Number and Kinds of Urine Examinations Made.*

*October 1, 1915–October 1, 1916.*

Month.	Tuberculosis.		Gonococci.		Miscellaneous.	Total.
	Positive.	Negative.	Positive.	Negative.		
October.....		2			32	34
November.....	1	2			19	22
December.....		3			28	31
January.....		1			24	25
February.....	3	8			57	68
March.....	4				74	78
April.....	2				39	41
May.....		3		1	39	43
June.....		4			59	63
July.....					28	28
August.....		2			45	47
September.....		1			50	51
Totals.....	10	26		1	494	531

### SPECIMENS EXAMINED FOR GONOCOCCI.

Table 31 shows 983 specimens of pus were examined for gonococci. 439 of these were from male patients of which 326 or 51% contained gonococci; 490 were from females and of these 213 or 43% were positive; in 54 specimens no sex was given and 28 or 52% were positive, leading to the belief that most of these were from male patients. In all 470 or 48% were positive. A much higher percentage of specimens from male patients were positive than from females. This low percentage of positives from females is due largely to the improper methods of taking specimens, as most of them are taken from the vagina. The vagina is teeming with all sorts of bacteria many of which resemble gonococci so closely that no certain differentiation can be made. Pus in the case of females should be taken from the urethra after stripping it or from the inner portion of the cervix uteri.

TABLE 31.

*Showing Number Specimens of Pus Examined for Gonococci Per Month.  
October 1, 1915—October 1, 1916.*

Month.	Male.		Female.		Sex Not Given.		Total.
	Positive.	Negative.	Positive.	Negative.	Positive.	Negative.	
October....	17	16	15	21	3	4	76
November...	19	19	22	15	6	1	82
December...	26	8	20	18	3	2	77
January....	23	9	12	8	5	4	61
February...	21	21	15	16	4	1	78
March.....	19	18	23	47	2	2	111
April.....	15	22	17	17	1	1	73
May.....	20	17	24	22	.....	2	85
June.....	16	30	19	29	1	3	98
July.....	16	10	14	26	2	2	70
August....	19	20	15	27	.....	2	83
September..	15	23	17	31	1	2	89
Total..	226	213	213	277	28	26	983

## PATHOLOGICAL SPECIMENS.

Table 32 shows the total number of pathological specimens examined. 118 or 29 % were some form of carcinoma; 13 or 3% were some variety of sarcoma; 272 or 68% showed no positive evidence of malignancy. The low percentage of sarcoma is probably due to the nature of the disease making it impossible to take specimens with any degree of ease. No doubt some of the miscellaneous specimens were sarcoma since many of them were granulation tissue and this tissue is closely resembled by some form of sarcoma.

TABLE 32.

*Showing Number and Kinds of Pathological Tissues Examined.  
October 1, 1915—October 1, 1916.*

Month.	Carcinoma.	Sarcoma.	Miscellaneous.	Total.
October.....	19	1	18	38
November.....	6	1	25	32
December.....	8	2	14	24
January.....	6	.....	19	25
February.....	6	1	23	30
March.....	14	.....	30	44
April.....	11	1	27	39
May.....	11	.....	30	41
June.....	9	.....	14	24
July.....	13	5	27	45
August.....	6	1	28	35
September....	9	.....	17	26
Totals.....	118	13	272	403

TABLE 33.  
*Showing Location of Carcinoma Specimens.  
 October 1, 1915–October 1, 1916.*

Month	Uterus	Breast	Skin	Peris	Face	Kidney	Rectum	Prostate	Sto'ch	Pancreas	Labia	Liver	Spine	Miscell'a's	Total
October.....	4	4	2		4		1		1	2				3	19
November.....	1	1					1						1		6
December.....		2			3			1			1				8
January.....	3	1								1		1			8
February.....	1	1		1						1					6
March.....	1	3	1		5					1	1			1	14
April.....		2			3	1					3	1		1	11
May.....	2	1			3					1				1	11
June.....	2	3			3							1		1	9
July.....	2	2	1		3			1				2		1	13
August.....	1		3		2		2							1	6
September.....		2							1						9
Totals.....	17	22	8	1	27	2	6	2	5	6	5	5	1	11	118

TABLE 34.  
*Showing Various Sorts of Specimens Examined for Tubercle Bacilli.  
 October 1, 1915-October 1, 1916.*

Month.	Urine.		Pleural Fluid.		Joint.		Cerebro Spinal.		Pus.		Feces.		Milk.		Blood.		Abdominal Fluid.		Vomitua.		Total.
	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	
October..		2							2	6		2									12
November.	1	2							2	4		1									13
December.		2		1					2	5											16
January..		1								6											12
February.	3	8		1						5	1										23
March....		4					2			4											17
April....		2		6			3			8											26
May....		2		2			1			5											14
June....		4					1			3						1			1		12
July....							1			4											7
August..		2		2			3			3											11
September.		1					5			3											13
Totals...	4	32		12		1	16		6	56	2	36		7		1	2			1	176

## GUINEA PIGS INOCULATED FOR TUBERCLE BACILLI.

When a few acid fast bacilli are found in the urine examined for tubercle bacilli a catheterized specimen is requested for guinea pig inoculation. The urine sediment is injected into the peritoneal cavity.

The remarkable thing is that not a single pig showed evidence of tuberculosis anywhere in its body.

TABLE 35.

*Showing Number of Guinea Pigs Inoculated for Tuberculosis with Results.  
October 1, 1915–October 1, 1916.*

Month.	Positive.	Negative.	Total.
October.....			
November.....			
December.....			
January.....			
February.....			
March.....			
April.....		1	1
May.....		2	2
June.....		3	3
July.....		2	2
August.....		2	2
September.....			
Totals.....		10	10

## OUTFITS FOR SENDING SPECIMENS TO THE LABORATORY.

Table 36 shows the number and kind of outfits sent out each month during 1916.

Table 37 shows the number and kind of outfits sent out each year during 1906-1916. There were seven thousand more outfits sent out this year than last.

The purpose of sending outfits to physicians is to make it easier for them to comply with the United States Post Office regulations. In no sense are the outfits sold to physicians, they are only loaned. Yet many of the outfits are torn up and used for all sorts of purposes. Some even go so far as to send drugs in them to patients. Many physicians so little appreciate the convenience of the outfits that they constantly object to paying insignificant express charges and constantly send them to the laboratory improperly classified to decrease carriage charges. Local health officers should keep adequate supplies of outfits on hands at all times. Outfit supply stations should be located at

drug stores or at the local post office or at the local health office in the City Hall or Court House rather than in the private office of the physician.

Table 38 shows the approximate number of outfits sent out and returned in ten years and the probable number lost or still in the hands of the doctors.

TABLE 36.  
*Showing Number and Kind of Outfits Prepared and Sent Out Each Month.  
 October 1, 1915-October 1, 1916.*

Month.	Tuberculosis.	Diphtheria.	Widal.	Gonococci.	Blood Count.	Malaria.	Bile Media.	Hook Worm.	Diphtheria Epidemics.	Total.
October.....	926	946	356	122	46	35	38	1	2,375	4,845
November.....	482	716	137	87	5	31	8	.....	2,540	4,006
December.....	644	542	293	74	25	18	6	.....	500	2,102
January.....	654	446	116	127	48	24	6	.....	.....	1,421
February.....	820	859	93	81	24	20	6	.....	850	2,753
March.....	938	440	170	112	18	27	5	.....	200	1,910
April.....	698	118	100	75	16	10	3	.....	100	1,120
May.....	1,318	747	550	433	341	220	8	.....	.....	3,617
June.....	630	233	199	135	20	39	.....	.....	.....	1,256
July.....	545	155	169	59	.....	11	2	.....	.....	941
August.....	547	256	695	35	10	.....	16	.....	.....	1,559
September.....	573	438	400	103	38	41	17	.....	1,600	3,210
Totals..	8,775	5,896	3,278	1,443	591	476	115	1	8,165	28,740



TABLE 37.  
Showing Number and Kind of Outfits Prepared and Sent Out.  
1906-1916.

Year.	Tu erculosis.	Diphtheria.	Widal.	Gonococci.	Blood Count.	Malaria.	Bile Media.	Hook Worm.	Diphtheria Epidemic.	Total.
1906.....	358	54	190	.....	.....	25	.....	.....	.....	627
1907.....	3,417	1,676	1,504	.....	.....	223	.....	.....	.....	6,820
1908.....	4,289	2,959	1,924	.....	.....	656	.....	.....	.....	9,828
1909.....	4,240	1,956	2,128	.....	.....	500	.....	.....	.....	9,226
1910.....	4,285	2,679	2,206	402	.....	518	.....	.....	.....	10,601
1911.....	4,740	4,311	2,781	913	.....	397	.....	.....	.....	12,785
1912.....	5,662	12,892	1,968	556	.....	355	.....	.....	.....	21,430
1913.....	6,295	12,354	2,587	753	.....	469	.....	.....	.....	22,759
1914.....	5,989	12,723	2,816	1,064	.....	913	.....	.....	.....	23,694
1915.....	6,191	4,342	2,867	1,253	.....	358	65	1	5,617	21,094
1916.....	8,775	5,896	3,278	1,203	450	476	115	1	8,165	28,740
Totals....	54,241	61,642	24,249	7,577	1,041	4,890	180	2	13,782	167,604

TABLE 38.  
*Showing Outfits Probably Out Now and Outfits Probably Lost.  
 1906-1916.*

Year.	Tuberculosis.			Diphtheria.			Widal.			Gonococci.			Malaria.		
	S. O.	O. R.	D.	S. O.	O. R.	D.	S. O.	O. R.	D.	S. O.	O. R.	D.	S. O.	O. R.	D.
1906.....	358	1,503	1,758	54	171	171	190	499	499	.....	.....	.....	25	45	.....
1907.....	3,417	2,116	1,758	1,676	633	1,033	1,504	802	612	.....	.....	.....	223	167	20
1908.....	4,289	3,136	2,81	2,779	1,445	1,103	1,924	1,270	234	.....	.....	.....	656	194	56
1909.....	4,240	3,458	831	11,956	1,638	318	1,924	1,509	416	.....	.....	.....	500	189	462
1910.....	4,285	4,228	657	2,679	2,452	227	2,206	2,038	1,024	.....	.....	.....	518	203	311
1911.....	4,740	4,688	52	4,311	9,377	5,066	2,781	2,038	1,72	.....	.....	.....	397	200	197
1912.....	5,662	4,784	878	12,692	15,792	3,100	1,968	1,609	931	.....	.....	.....	355	155	200
1913.....	6,295	5,048	1,147	12,354	11,064	1,290	2,587	1,603	984	.....	.....	.....	469	148	321
1914.....	6,191	4,930	1,261	9,959	10,909	950	2,867	1,583	1,284	.....	.....	.....	358	146	212
1915.....	8,775	6,086	2,689	14,061	9,994	4,067	3,278	1,954	1,324	.....	.....	.....	476	146	330
1916.....										.....	.....	.....			

S. O.—Outfits sent out.

O. R.—Outfits received.

D.—Difference between outfits sent and outfits received.

## HYDROPHOBIA.

Table 39 shows brains found positive for hydrophobia. Forty-eight counties were infected. Marion county again this year has a very high number of positive brains. A remarkable thing this year is that the percentage positive is practically the same as last year. This year had 68% positive while last year gave 67% positive.

There is considerable discussion as to what month rabies is most prevalent. This is a very hard thing to decide. A study of table 40 will show that for the last nine years the monthly average of positive brains is 11. June in the last column contains the highest number of positives. However a study of the monthly positives for each year gives the following results: 1906, July highest; 1909, February highest; 1910, June highest; 1911, September highest; 1912, April highest; 1913, February highest; 1914, April highest; 1915, July highest and 1916, April highest. April is the highest month in three years; February and July in two years and June and September in one year. Probably the late Spring and early summer months are the highest months for rabies because the dogs run about the country more during these months.

Table 41 shows that dogs are the chief factor in the spread of rabies for out of a total of, 138 positive brains, 111 or 67% were the brains of dogs. Of the remaining 33% of positive brains the infections were transmitted in most instances to the animals by dogs. In any measure taken for the prevention of rabies, the control of dogs is by far the most important thing to be done.

TABLE 39.

*Showing Brains Found Positive for Rabies From Each County.  
October 1, 1915–October 1, 1916.*

County.	Positive.	County.	Positive.
Adams.....		Lawrence.....	1
Allen.....		Madison.....	9
Bartholomew.....	3	Marion.....	30
Benton.....		Marshall.....	
Blackford.....		Martin.....	4
Boone.....	3	Miami.....	1
Brown.....		Monroe.....	
Carroll.....		Montgomery.....	1
Cass.....	3	Morgan.....	2
Clark.....	4	Newton.....	
Clay.....		Noble.....	
Clinton.....	1	Orange.....	
Crawford.....		Ohio.....	1
Daviess.....	1	Owen.....	1
Dearborn.....		Parke.....	1
Decatur.....	1	Perry.....	
Dekalb.....		Pike.....	
Delaware.....	2	Porter.....	1
Dubois.....		Posey.....	3
Elkhart.....		Pulaski.....	
Fayette.....	1	Putnam.....	
Floyd.....	8	Randolph.....	1
Fountain.....	2	Ripley.....	
Franklin.....	1	Rush.....	1
Fulton.....	1	Scott.....	2
Gibson.....	4	Shelby.....	2
Grant.....	2	Spencer.....	1
Greene.....	7	Starke.....	
Hamilton.....	1	Steuben.....	
Hancock.....		St. Joseph.....	
Harrison.....	3	Sullivan.....	2
Hendricks.....		Switzerland.....	
Henry.....		Tippecanoe.....	3
Howard.....		Tipton.....	
Huntington.....		Union.....	
Jackson.....	1	Vanderburg.....	2
Jasper.....	1	Vermillion.....	1
Jay.....		Vigo.....	5
Jefferson.....	4	Wabash.....	
Jennings.....		Warren.....	1
Johnson.....	1	Warrick.....	
Knex.....		Washington.....	1
Kosciusko.....		Wayne.....	5
LaGrange.....		Wells.....	
Lake.....		White.....	
LaPorte.....		Whitley.....	
LaSalle, Ill.....	1		
Totals.....	56	Totals.....	82

TABLE 40.

*Showing Number of Brains Examined and Found Positive Per Month.  
1907-1916.*

Month.	1907.	1908.	1909.	1910.	1911.	1912.	1913.	1914.	1915.	1916.	Average per Month.
October.....		3	4	6	8	13	20	11	12		10
November.....	1	2	6	3	9	12	22	12	11		9
December.....	3	8	7	7	9	6	20	16	8		9
January.....		4	7	4	9	14	17	19	16	12	11
February.....		4	9	4	11	13	29	11	23	9	12
March.....		3	7	2	10	16	20	10	17	9	10
April.....		4	4	2	12	27	21	20	17	18	13
May.....		1	5	10	8	21	20	19	15	17	13
June.....		9	8	13	3	13	12	10	21	15	17
July.....		16	5	5	6	11	17	15	24	10	12
August.....		15	1	5	13	14	19	19	17	10	12
September.....		4	6	5	17	6	12	13	12	7	9
Totals.....	4	73	69	66	115	166	229	175	193	107	
Average per month per year	2	6	6	6	10	14	19	15	16	12	

TABLE 41.

*Showing Number and Kinds of Brains Examined for Rabies Per Month.  
October 1, 1915-October 1, 1916.*

Month.	Dogs.		Cats.		Cows.		Hogs.		Horses.		Mules.		Squirrels.		Total.
	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	Pos.	Neg.	
October.....	8	2	2		2										14
November.....	9	3			1				1						14
December.....	6	1			1				1						9
January.....	9	3	2	2			1								17
February.....	6	1	2		1										10
March.....	9	2				1									12
April.....	17	3	1	1											22
May.....	14	11	1	2	1		1								30
June.....	11	7			3		1				1				23
July.....	10	13						1	1						25
August.....	8	7		1	1			1							18
September.....	4	2	1		1			1					1		10
Totals.....	111	55	9	6	11	1	3	1	4	1		1		1	204

TABLE 42.

*Showing Brains Examined for Rabies and Results.  
October 1, 1915–October 1, 1916.*

Month.	Positive.	Negative.	Total.
October.....	12	2	14
November.....	11	3	14
December.....	8	1	9
January.....	12	5	17
February.....	9	1	10
March.....	9	3	12
April.....	18	4	22
May.....	17	13	30
June.....	15	8	23
July.....	10	15	25
August.....	10	8	18
September.....	7	3	10
Totals.....	138	66	204

TABLE 43.

*Showing Number of Guinea Pigs Inoculated for Rabies with Results.  
October 1, 1915–October 1, 1916.*

Month.	Positive.	Negative.	Total.
October.....		1	1
November.....		1	1
December.....	1	5	6
January.....		3	3
February.....	1		1
March.....		1	1
April.....		3	3
May.....		2	2
June.....		8	8
July.....			
August.....		6	6
September.....			
Totals.....	2	30	32

### PASTEUR TREATMENT.

This year 151 persons were given treatment to prevent hydrophobia. During the five and one-half years in which the antirabic treatment has been given by the State Board of Health 922 persons have been treated and only two have died; and only one of these could be charged to the failure of the treatment to protect.

The usual fatalities are not much below five-tenths percent. while our death rate is about one-tenth percent.

This low percentage of deaths must be due to the fact that many persons were not bitten severely and few were bitten by dogs not absolutely proven to be rabid. Even if half the persons treated belong to this class still our percentage of successes is high.

It seems that 100 deaths in 1,000 untreated persons would be a very conservative estimate so that it could be safely said that 98 lives have thus been saved. The tables in this section give detailed information concerning age, sex, and residence of patients, the location of the bite and the animal doing the biting. Marion county furnished 68 patients, the highest number in any county in the State. The rabies situation in Indianapolis is bad and nothing is being done to improve it.

TABLE 44.

*Number of Persons Who Have Taken Pasteur Treatment During the Last Year by Counties.*

Counties.	Number.	Counties.	Number.
Adams.....		Lawrence.....	1
Allen.....	1	Madison.....	4
Bartholomew.....		Marion.....	68
Benton.....		Marshall.....	
Blackford.....		Martin.....	1
Boone.....	1	Miami.....	5
Brown.....		Monroe.....	1
Carroll.....	1	Montgomery.....	
Cass.....	1	Morgan.....	1
Clark.....	1	Newton.....	
Clay.....		Noble.....	
Clinton.....		Ohio.....	
Crawford.....		Orange.....	
Davless.....	3	Owen.....	
Dearborn.....		Parke.....	
Decatur.....		Perry.....	
DeKalb.....		Pike.....	1
Delaware.....	9	Porter.....	
Dubois.....		Posey.....	3
Elkhart.....		Pulaski.....	
Fayette.....	1	Putnam.....	
Floyd.....	3	Randolph.....	
Fountain.....	1	Ripley.....	
Franklin.....		Rush.....	
Fulton.....		Scott.....	1
Gibson.....	3	Shelby.....	1
Grant.....	1	Spencer.....	3
Greene.....	3	Starke.....	
Hamilton.....	4	Steuben.....	
Hancock.....		St. Joseph.....	
Harrison.....	1	Sullivan.....	
Hendricks.....	1	Switzerland.....	
Henry.....		Tippecanoe.....	1
Howard.....		Tipton.....	
Huntington.....		Union.....	
Jackson.....		Vanderburg.....	
Jasper.....		Vermillion.....	1
Jay.....	2	Vigo.....	7
Jefferson.....		Wabash.....	
Jennings.....		Warren.....	
Johnson.....		Warrick.....	1
Knox.....		Washington.....	
Kosciusko.....		Wayne.....	15
LaGrange.....		Wells.....	
Lake.....		White.....	
Laporte.....		Whitley.....	
Totals.....	36	Totals.....	115

TABLE 45.

*Mode of Infection.*

Bitten by cat.....	9
Bitten by dog.....	136
Infected by cow.....	3
Infected by horse.....	3
<hr/>	
Total number patients.....	151

TABLE 46.

*Showing Ages of Persons Who Have Taken Pasteur Treatment  
During the Past Year.*

<i>Age Period.</i>	<i>No. of Cases.</i>
1 to 10 years.....	54
11 to 20 years.....	49
21 to 30 years.....	25
31 to 40 years.....	14
41 to 50 years.....	5
51 to 60 years.....	4
<hr/>	
Total.....	151

TABLE 47.

*Virus Used.*

United States.....	95
Lilly.....	56
<hr/>	
Total.....	151

TABLE 48.

*Classification of Persons Who Have Taken Pasteur Treatment  
During the Last Year.**October 1, 1915–October 1, 1916.*

Males.....	100
Females.....	51
<hr/>	
Total.....	151



TABLE 49.

*Showing Locations of Patients' Bites.*

Bitten on hand.....	56
Bitten on face.....	16
Bitten on face and arm.....	2
Bitten on leg and foot.....	3
Bitten on leg.....	20
Bitten on arm.....	22
Bitten on foot.....	5
Bitten on body.....	4
Bitten on arm and leg.....	1
Bitten on face and back.....	1
Bitten on arm and body.....	1
Saliva on hands.....	17
Infected on hands and body.....	1
Infected by handling dog.....	1
Infected by screen containing saliva.....	1
Total.....	151

TABLE 50.

*Showing Number of Persons Bitten by Rabid Animals.  
1911-1916.*

<i>Year.</i>	<i>Persons.</i>
1911.....	18
1912.....	74
1913.....	210
1914.....	230
1915.....	239
1916.....	151
Total.....	922

TABLE 51.

*A List of the Names, Sex, Age and County of all Persons Who Have Taken  
the "Pasteur Treatment" to Prevent Rabies.  
July 12, 1911–October 1, 1916.*

Name.	Age.	Sex.	County.
Ashton, Richard	5	M.	Hendricks.
Aitic, Kenneth	8	M.	Clinton.
Alexander, Miss Iva	16	F.	Marion.
Abbott, Hallie	5	M.	Marion.
Anderson, Mrs. J.	32	F.	Marion.
Allbright, Mrs. S.	55	F.	Marion.
Beaman, Walter	8	M.	Marion.
Bridge, Mrs. M.	28	F.	Marion.
Brown, Virginia	3 ½	F.	Montgomery.
Brown, Bert	4	M.	Greene.
Beutel, Jesse	25	M.	Clark.
Brunson, Mrs. Rachel	67	F.	Henry.
Bracken, Grover	8	M.	Marion.
Banks, Mr. A. J.	45	M.	Marion.
Barfield, Willis	5	M.	Floyd.
Blaco, Lena	6	F.	Marion.
Ballinger, Velma	9	F.	Marion.
Bishop, Miss Mary	53	F.	Jay.
Brooks, Mrs. Mary	52	F.	Marion.
Brier, Louise	3	F.	Fountain.
Brier, Mrs.	33	F.	Fountain.
Brook, Paul	8	M.	Jefferson.
Brook, Mary	2	F.	Jefferson.
Burkhalter, Cletus	9	M.	Clinton.
Boss, Stanley	5	M.	Marion.
Basey, Galen	8	M.	Marion.
Brown, Etta	6	F.	Marion.
Bradburn, Ed.	12	M.	Marion.
Baugh, Mary	7	F.	Marion.
Blair, Mrs. Collie	19	F.	Wayne.
Bennett, Mr. J. F.	56	M.	Marion.
Barnhill, Wm. H.	39	M.	Hamilton.
Barnhill, Lawrence	12	M.	Hamilton.
Berkowitz, Stella	5	F.	Marion.
Berkowitz, Mrs. J.	30	F.	Marion.
Berkowitz, Allen	3	M.	Marion.
Bly, Bader	10	M.	Wayne.
Blasey, Lorena Blanch	6	F.	Daviess.
Blaud, Frank	40	M.	Marion.
Bligon, Crawford	26	M.	Hendricks.
Breeze, Clarence	11	M.	Wayne.
Brock, Bertha May	12	F.	Morgan.
Brock, Roy	9	M.	Madison.
Burnett, Hays	29	M.	Marion.
Craft, Phoebe	7	F.	Marion.
Coffin, G. W.	69	M.	Marion.
Collier, Loren	13	M.	Marion.
Clark, Claude	13	M.	Marion.
Corby, Constance	4 ½	F.	Marion.
Clark, Elmer	33	M.	Clinton.
Clark, Floyd	14	M.	Clinton.
Clark, Clarence	5	M.	Marion.
Clark, Raymond	12	M.	Marion.
Carter, Mrs. Ella	31	F.	Lawrence.
Carter, Otto	34	M.	Lawrence.
Carter, Norman	10	M.	Lawrence.
Carter, Helen	4	F.	Lawrence.
Cooper, T. A.	52	M.	Wayne.
Cotton, Arthur	22	M.	Marion.
Conner, Mrs. Hattie	44	F.	Marion.
Chastain, Oran	14	M.	Marion.
Cox, George	9	M.	Marion.
Clyde, Miss Kitty	31	F.	Marion.
Colburn, Francis	14	M.	Marion.
Cox, Dras	12	M.	Martin.
Carpenter, Noah N.	39	M.	Marion.
Clark, Miss Bertha	22	F.	Marion.
Chapman, Miss Blanch	16	F.	Marion.
Clark, George A.	16	M.	Delaware.
Cotton, Dorothy	15	F.	Marion.

TABLE 51—Continued.

Name.	Age.	Sex.	County.
Connors, Edward.	12	M.	Marion.
Dawson, Della Lee.	24	F.	Scott.
Davis, John.	19	M.	Hamilton.
Duncan, Mrs. L.	55	F.	Marion.
Deidrich, Wilma.	6	F.	Marion.
Deidrich, Dortha.	44	F.	Marion.
Drummond, Mrs. F.	19	F.	Marion.
Douglas, Menno.	12	M.	Marion.
DeBaun, George.	13	M.	Shelby.
Daugherty, Harry.	4	M.	Gibson.
Dicks, E. C.	44	M.	Marion.
Dickson, May.	10	F.	Greene.
Dickmeyer, Arnold.	11	M.	Marion.
Dickmeyer, Raymond.	6	M.	Marion.
Dixon, Lulu.	6	F.	Posey.
Dougherty, Mammie.	19	F.	Daviess.
Dye, Mrs. Jessie.	21	F.	Posey.
Delgrande, Evelyn.	5	F.	Vigo.
Dewhurst, Milton.	7	M.	Tippecanoe.
Elliott, Mrs. Maude.	34	F.	Delaware.
Elliott, Carlton.	14	M.	Delaware.
Elliott, Arthur.	12	M.	Delaware.
Engelbrecht, Arthur H.	4	M.	Wayne.
Freels, D.	58	M.	Marion.
Fox, Oneta.	11	F.	Marion.
Fox, Edward.	8	M.	Marion.
Fish, Elmer.	31	M.	Martin.
Fredericks, Theodore.	12	M.	Marion.
Figley, Ralph.	11	M.	Bartholomew.
Fox, Frank.	34	M.	Marion.
Fivecoats, Ernest.	3	M.	Marion.
Fahler, Mrs. Mary.	38	F.	Marion.
Fulton, Wm. E.	37	M.	Wayne.
Freed, Charlie.	11	M.	Cass.
Fiddle, Gilbert L.	4	M.	Marion.
Ferguson, Fletcher.	10	M.	Clark.
Flack, Thelma.	3	F.	Marion.
Gennung, Harrold.	7	M.	Vigo.
Griffith, George.	38	M.	Marion.
Gottlobb, Mrs. E.	43	F.	Delaware.
Geiger, H. G.	27	M.	Hamilton.
Geiger, Josephine.	2	F.	Hamilton.
Glunt, Edna.	24	F.	Hamilton.
Glunt, S. A.	25	M.	Hamilton.
Grueling, R.	59	M.	Marion.
Grueling, W.	28	M.	Marion.
Grueling, Clara.	15	F.	Marion.
Godby, A.	29	M.	Hamilton.
Gordon, Frank.	26	M.	Floyd.
Gullion, Fay.	12	M.	Warren.
Grammer, Lester.	24	M.	Clark.
Green, James Franklin.	30	M.	Boone.
Grose, Gerald.	8	M.	Marion.
Githens, Carl.	5	M.	Marion.
Gildewell, Frenier.	13	M.	Marion.
Green, Chester.	9	M.	Marion.
Hopp, Glenn.	44	M.	Marion.
Harrison, S. W.	24	M.	Marion.
Hobart, E. S. Mrs.	39	F.	Marion.
Hobart, E. D.	38	M.	Marion.
Hobart, Chas.	12	M.	Marion.
Hobart, James.	14	M.	Marion.
Hembree, Evelyn.	14	F.	Marion.
Harding, John.	30	M.	Hendricks.
Hunter, Ralph.	11	M.	Cass.
Habig, Chas.	35	M.	Marion.
Hildebrandt, Mrs. A.	30	F.	Marion.
Hildebrandt, E.	28	M.	Marion.
Hartley, Mildred.	10	F.	Benton.
Harker, G. M.	31	M.	Daviess.
Harker, Kenneth.	4	M.	Daviess.
Hollingsworth, E. W.	21	M.	Knox.
Hendryx, Mable.	4	F.	Clinton.
Hahn, Frank.	27	M.	Marion.
Hassfurther, Herbert.	9	M.	Jefferson.
Haas, Charles.	20	M.	Marion.
Haas, Charles Mrs.	20	F.	Marion.

TABLE 51—Continued.

Name.	Age.	Sex.	County.
Hill, Edna.....	3	F.	Hendricks.
Hardesty, Mrs. O.....	32	F.	Boone.
Hardesty, Iris.....	7	F.	Boone.
Hill, Herbert.....	8	M.	Shelby.
Hammerton, Marie.....	9	F.	Jasper.
Hartley, M.....	40	M.	Hamilton.
Herndon, Virgie.....	8	F.	Marion.
Haycroft, Mrs. Hattie.....	36	F.	Wayne.
Hughes, J. R.....	24	M.	Miami.
Hughes, Mrs. J. R.....	24	F.	Miami.
Hamilton, James.....	22	M.	Marion.
Hapner, Clayton.....	14	M.	Wayne.
Halsley, Florence.....	3	F.	Wayne.
Hayes, Vernon.....	19	M.	Delaware.
Hasselburg, John.....	13	M.	Marion.
Hawkins, Oscar.....	13	M.	Wayne.
Helb, Russell.....	8	M.	Marion.
Hilton, Morris.....	5	M.	Marion.
Hobbs, A. A.....	28	M.	Madison.
Hudson, Fern.....	12	F.	Greene.
Hutzler, Otho.....	12	M.	Marion.
Isom, Martin.....	33	M.	Morgan.
Ingalls, Russell.....	9	M.	Wayne.
Johnson, Miss E.....	23	F.	Marion.
Jarrett, Wm.....	36	M.	Marion.
Jones, Maurice.....	8	M.	Jefferson.
Johnson, Robert.....	58	M.	Lawrence.
Jarvis, Mary.....	5	F.	Marion.
Jensen, Stewart.....	16	M.	Marion.
Jensen, Clara.....	22	F.	Marion.
Jacobs, Crystal.....	33	F.	Marion.
Johnson, Edmund.....	3	M.	Floyd.
Kissel, Charles.....	45	M.	Marion.
Kissel, Mrs. Pauline.....	42	F.	Marion.
Kirkhoff, Harrold.....	15	M.	Tippecanoe.
Kosterbader, A.....	34	F.	Marion.
Kosterbader, B.....	41	F.	Marion.
Kosterbader, C.....	40	F.	Marion.
Krohner, Willie H.....	15	M.	Marion.
Kelley, Edna.....	25	F.	Marion.
Kissick, Mrs. Margaret.....	30	F.	Marion.
Kissick, Elaine.....	1-4 mo	F.	Marion.
Lohrman, Elizabeth.....	4½	F.	Marion.
Lee, Herman.....	11	M.	Marion.
Lane, Miles.....	7	M.	Marion.
Levi, Mrs. Minnie.....	53	F.	Marion.
Lefever, Charles.....	17	M.	Marion.
Lydick, George R.....	4½	M.	Marion.
Lyons, Morris.....	6	M.	Marion.
Lunsford, James.....	38	M.	Vigo.
Lunsford, Roy.....	13	M.	Vigo.
Lamb, Ernest H.....	6	M.	Davies.
Leavitt, Joe.....	11	M.	Green.
Lourton, Henry.....	38	M.	Marion.
Murphy, Mrs. Dennis.....	44	M.	Marion.
McClelland, Mrs. M.....	67	M.	Jefferson.
Mooreland, Edgar.....	8	M.	Jefferson.
Meek, George.....	4	M.	Jefferson.
McDonald, John.....	4	M.	Hamilton.
McDonald, W.....	40	M.	Shelby.
McDonald, Mrs. W.....	34	F.	Shelby.
McDonald, Lawrence.....	3	M.	Shelby.
McLean, Mrs. Sarah.....	68	F.	Marion.
McKincy, Guy.....	8	M.	Clinton.
McCurdy, Charles.....	31	M.	Marion.
McCrade, James.....	3	M.	Marion.
McKnight, Harry.....	6	M.	Marion.
McCord, Vivian.....	5	F.	Fountain.
McCurdy, Herbert.....	13	M.	Marion.
McBride, Victorien.....	12	F.	Marion.
McCome, Mrs. Wm.....	20	F.	Allen.
Meeks, George.....	27	M.	Marion.
Mabrey, Clifford.....	5	M.	Hamilton.
Morton, Elford.....	12	M.	Marion.
Moore, Preston.....	13	M.	Delaware.
Mote, Neoma.....	8	F.	Marion.
Melvin, Carroll.....	10	M.	Marion.

TABLE 51—Continued.

Name.	Age.	Sex.	County.
Merridith, Albert.	2	M.	Marion.
Morgan, Dorothy	9	F.	Marion.
Modlin, Dr. E.	24	M.	Marion.
Murphy, Milton	33	M.	Montgomery.
Murphy, Harrold	34	M.	Montgomery.
Matter, George	46	M.	Marion.
Matter, Mrs. George	43	F.	Marion.
Matter, Iva	26	F.	Marion.
Matter, Emily	23	F.	Marion.
Miller, Elizabeth	11	F.	Marion.
Mitchell, Mrs. Belle	55	F.	Miami.
Murphy, Leo	22	M.	Miami.
Murphy, Jesse	25	M.	Marion.
Murphy, Mrs. Berne	23	F.	Marion.
Murray, Loren C.	5	M.	Fayette.
Majors, Anna Mary	3	F.	Madison.
Masters, Arthur	35	M.	Pike.
Moore, Barry	27	M.	Wayne.
Mounts, Robert Edwin	26	M.	Vigo.
Myers, T. O.	18	M.	Marion.
Nichols, George	18	M.	Marion.
Noonan, Sarah	0	F.	Marion.
Nye, Mrs. B. C.	31	F.	Marion.
Ogle, Merrill	26	M.	Hamilton.
Osborn, Thomas	11	M.	Green.
O'Neil, Hallie	11	F.	Lawrence.
Patterson, Mrs. J.	58	F.	Marion.
Palachek, Mary Jane	3	F.	Henry.
Pursell, Miss Grace	24	F.	Marion.
Pool, Delever	10	M.	Marion.
Porter, Henry	30	M.	Marion.
Parks, Antonetta	8	F.	Marion.
Parks, Ozenia	4	F.	Marion.
Fruitt, Wm. T.	7	M.	Benton.
Parks, Janet	4	F.	Marion.
Paraley, Bert	23	M.	Marion.
Pence, Charles	7	M.	Marion.
Pinkstaff, A. D.	53	M.	Knox.
Perry, Mathew H.	22	M.	Marion.
Perry, Mrs. Jennie L.	56	F.	Marion.
Pekoski, Joe	13	M.	Vermillion.
Quinlan, Harry	13	M.	Marion.
Risley, Joseph	7	F.	Marion.
Risley, Edna	9	F.	Marion.
Richey, Goldie	9	F.	Marion.
Rademacher, Helen	25	F.	Decatur.
Ruble, Mrs. Chas.	4	F.	Decatur.
Ruble, Helen	6	F.	Marion.
Ray, Catherine	5	F.	Marion.
Ray, Genevieve	38	M.	Marion.
Rea, A. D.	6	F.	Miami.
Reibley, Estelle	8	M.	Marion.
Roselle, Anson	24	M.	Clinton.
Richards, H.	21	F.	Clinton.
Richards, Mrs. H.	13	M.	Marion.
Ritter, Robert	4	F.	Clinton.
Ryan, Martha	8	M.	Marion.
Russell, Donald	34	M.	Hamilton.
Richardson, Joe R.	24	F.	Marion.
Renard, Adele	27	M.	Marion.
Rhake, Carl	16	M.	Hamilton.
Rhodes, Donald	41	F.	Marion.
Riordon, Mrs. Neil	17	M.	Marion.
Riordon, Burton	15	M.	Marion.
Riordon, Wilbur	8	M.	Marion.
Riordon, Edwin	43	M.	Marion.
Riordon, Adin	37	F.	Marion.
Rogers, Emma	44	M.	Jefferson.
Ross, John	12	M.	Floyd.
Rowe, Frederick	18	M.	Vigo.
Stewart, Verner	23	F.	Vigo.
Schoffstall, Mrs. H.	12	M.	Marion.
Stricker, Leonard	12	M.	Marion.
Stewart, Gaylord	59	M.	Vigo.
Summers, Ben	33	M.	Marion.
Spacek, Herman	62	M.	Marion.
Smith, J. E.			

TABLE 51—Continued.

Name.	Age.	Sex.	County.
Schermerhorn, Mrs. S.	17	F.	Lawrence.
Schermerhorn, W.	23	M.	Lawrence.
Schnepffel, Arnold.	16	M.	Marion.
Sanders, W. E.	30	M.	Marion.
Scherer, LaNoma.	4	F.	Fountain.
Sutton, C. O.	31	M.	Marion.
Shotts, Wm.	38	M.	Marion.
Swarens, Louise.	4	F.	Floyd.
Studdarth, Stanley.	13	M.	Perry.
Solomon, Bernard.	4	M.	Marion.
Schweitzer, Ada E.	33	F.	Marion.
Snyder, Iven.	5	M.	Marion.
Sturm, John.	16	M.	Marion.
Sturn, Esther.	8	F.	Marion.
Schwartz, Melbourn.	7	M.	Greene.
Schultz, Gustave.	18	M.	Marion.
Spray, Pauline.	12	F.	Mounco.
Starkey, Wayne.	14	M.	Marion.
Scott, Woodrow.	4	M.	Spencer.
Scott, Foster.	12	M.	Spencer.
Scott, O. W.	35	M.	Spencer.
Shemaker, Marjorie.	3	F.	Delaware.
Shemaker, Robert.	19	M.	Delaware.
Shemaker, Mrs. Maude.	42	F.	Delaware.
Shemaker, Joseph.	16	M.	Delaware.
Shouse, Lillie.	23	F.	Vigo.
Shuck, Wm.	6	M.	Harrison.
Smeltzer, Frances.	8 mo.	F.	Marion.
Smeltzer, Lee.	29	M.	Marion.
Smith, Thomas.	9	M.	Grant.
Smith, Ezra T.	26	M.	Shelby.
Strouse, Ruby.	4	F.	Scott.
Stevenson, Jonothan.	5	M.	Wayne.
Stevenson, James.	10	M.	Wayne.
Sullivan, Ellen.	9	F.	Vigo.
Stoolmiller, Chas.	13	M.	Madison.
Sutherland, John.	9	M.	Marion.
Street, Wm.	8	M.	Marion.
Thayer, Bennett.	5	M.	Clinton.
Thayer, Raymond.	8	M.	Clinton.
Thompson, Blanch.	19	F.	Orange.
Talbott, H.	42	M.	Marion.
Thomas, Richard.	7	M.	Vigo.
Thomas, Louise.	12	F.	Vigo.
Terhune, Flossie.	5	F.	Marion.
Tilley, Ida May.	12	F.	Jefferson.
Terry, Albertha.	12	F.	Marion.
Ulmer, Roselle.	3	F.	Floyd.
VanWinkle, Luther.	34	M.	Marion.
Vaughn, W. A.	40	M.	Marion.
Vandergrift, Charles.	7	M.	Marion.
VanGundy, W.	35	M.	Marion.
Van Etten, Ella Marie.	7	F.	Wayne.
Wilson, Mrs. Rose.	38	F.	Marion.
Whitty, John.	60	M.	Gibson.
Wooten, Ruby.	8	F.	Marion.
Wickwire, Dr. G. N.	52	M.	Hendricks.
Whitlock, M.	43	M.	Marion.
Whitlock, Mrs. M.	33	F.	Marion.
Whitlock, Miss M.	20	F.	Marion.
Whitlock, Edna.	14	F.	Marion.
Walters, Mildred.	5	F.	Marion.
Walters, Mrs. W. E.	28	F.	Marion.
Walters, W. E.	33	M.	Marion.
Wright, Mrs. Emma B.	53	F.	Marion.
Wulle, Evelyn.	4	F.	Marion.
Wegehof, Herman.	34	M.	Marion.
Wacker, Dr. A. H.	38	M.	Marion.
Wise, Manie.	14	M.	Clinton.
Wolfe, Bert.	39	M.	Marion.
Woffendale, Charles.	13	M.	Clinton.
Wilkerson, L.	32	M.	Marion.
Weise, Herbert.	14	M.	Marion.
Walden, Mildred.	6	F.	Vigo.
Webb, Helen.	9	F.	Miami.
Walters, Alva.	11	M.	Gibson.
Wade, Ulric.	15	M.	Marion.

TABLE 51—Continued.

Name.	Age.	Sex.	County.
Walker, Shelby.....	58	M.	Floyd.
Willis, J. C.....	38	M.	Gibson.
Willis, Henry H.....	28	M.	Warrick.
Wolforth, Edward.....	13	M.	Marion.
Worthington, William.....	14	M.	Marion.
Worthington, James.....	6	M.	Marion.
Windish, Arthur.....	12	M.	Marion.
Woodward, Lawrence.....	15	M.	Posey.
Wicker, Virgil.....	7	M.	Wayne.
Young, Lorene.....	7	F.	Marion.
York, Dr. C.....	38	M.	Hendricks.

### RABIES IN INDIANA FOR ELEVEN YEARS.

For several years there has been a general impression that a great many animals were dying of rabies. The medical profession did not consider seriously this general belief. There was no means to prove or disprove this belief until the discovery of Negri Bodies by Negri in 1903. In 1907 the method of examining brains was improved by Williams and Lowden of the New York Research Laboratory. This discovery came soon after the establishment of the Bacteriological Laboratory of the Indiana State Board of Health in December, 1906. In the nine years since that time the following number of brains have been found to contain Negri bodies.

TABLE 52.  
*Brains Positive and Percentage Positive.*  
 1906-1916.

Year.	Brains Positive.	Per Cent. Positive
1906.....	1	
1907.....	12	84
1908.....	73	85
1909.....	69	44
1910.....	66	51
1911.....	114	48
1912.....	158	50
1913.....	198	57
1914.....	198	63
1915.....	201	67
1916.....	138	63
Total.....	1,228	

It is very interesting to note that the percentage of positives fell from 84% in 1907 to 68% in 1916. First, there has been a marked improvement in the Harris staining method. The Frothingham impression method of making smears is also a decided help. These two improvements have made diagnosis in certain cases easier and more certain.

Making frozen sections of the Gasserian ganglion and staining with polychrome methylene blue has helped a great deal in doubtful cases. The use of guinea pigs instead of rabbits has made the biological test easier, shorter and less expensive.

All these improvements have made laboratory workers less willing to make a positive diagnosis from stained smears alone, desiring to wait for Gasserian ganglion sections or guinea pig injections where the persons bitten are adults.

Another cause for higher percentages in the beginning is that only animals brains were sent that had clinical symptoms of rabies. There has been a steady increase in the number of brains examined and a steady decrease in the percentage positive. One cause for the increase in the number of brains is that people are more alive to the possible presence of rabies and are therefore not willing to take any chance in view of the ease with which they can obtain a laboratory diagnosis.

People are so wrought up over the possibility of rabies in animals dying with symptoms of disease of the brain or spinal cord that there is no time lost in sending these animals' brains to the laboratory for confirmation or disproof of their suspicion. There is no doubt that the same thing holds true of animals as of human beings, namely, that no absolutely positive diagnosis can be made from the clinical symptoms without a microscopical examination of the brain.

Another more important cause for the increase in positive brains is due to the fact that rabies has increased both in number of cases and in territory covered. The number of brains examined in 1907 which was 82, was probably all the brains examined that year, but it is doubtful if the 204 brains examined in 1916 are the total number examined since a few are examined at the Indiana Veterinary College; a few at LaFayette and a few in Chicago. For the proper regulation of quarantine all positive cases should be reported to the Indiana State Board of Health.

Dogs and cats are most concerned in the distribution of rabies as is shown by Table 41. Thus we see that dogs are chiefly concerned in the spread and continued epidemics of rabies.



This has been conclusively shown in Great Britain where muzzling and rigid quarantine of all dogs has completely eradicated rabies.

No county in Indiana has been absolutely free from rabies during the years 1907-1916. In many places the disease has been endemic and becomes epidemic from time to time. The Indiana quarantine law of 1911 has done good work where there has been co-operation of the people with the local health officer.

However, an ideal county administration will not eradicate rabies unless there is efficient co-operation of the adjoining counties. An efficient State administration of the measures which prevent the spread of rabies will not be sufficient unless the adjoining States co-operate. Thus we see that antirabic measures must be county, State, National, International and Continental.

TABLE 53.

*Showing Kinds of Brains Found Positive.  
1909-1916.*

Years.	Dog	Cat	Hog	Horse	Cow	Mule	Sheep	Human	Coon	Fox	Squirrel	Total
To Oct. 31—												
1909.....	123	8	9	.....	4	.....	1	.....	.....	.....	.....	145
1910.....	100	1	6	2	3	.....	3	1	.....	.....	.....	116
1911.....	58	2	2	2	4	.....	.....	.....	.....	.....	.....	68
1912.....	146	1	1	1	9	.....	.....	.....	.....	.....	.....	158
1913.....	148	3	2	1	5	.....	.....	.....	.....	.....	.....	159
1914.....	164	15	3	4	12	1	.....	.....	1	1	.....	201
1915.....	180	10	1	2	1	.....	.....	.....	.....	.....	.....	194
1916.....	111	9	3	4	11	.....	.....	.....	.....	.....	.....	138
Totals.....	1,030	49	27	16	49	1	4	1	1	1	.....	1,179
Percent of totals..	87.3	4.1	2.3	1.4	4.1	0.11	0.36	0.11	.....	0.11	0.11	.....



The figure outside of circle indicates the month in which the first cases occurred. The number inside the circle indicates the total number of cases in that county for that year.



The figure outside of circle indicates the month in which the first cases occurred. The number inside the circle indicates the total number of cases in that county for that year.





The figure outside of circle indicates the month in which the first cases occurred. The number inside the circle indicates the total number of cases in that county for that year.

















## DIPHTHERIA DIAGNOSIS BY MEANS OF LOEFFLER'S BLOOD SERUM CONTAINING POTAS- SIUM TELLURATE.

WILL SHIMER M.D., and ADA E. SCHWEITZER, M.D.

One of the greatest difficulties in microscopical examinations of swab cultures for *B. diphtheria* is the great abundance of other bacteria.

Although Loeffler's blood serum is a culture medium of election for *B. diphtheria* many other mouth bacteria grow equally as well or better on this medium.

For a long time bacteriologists have been trying to find some chemical that would inhibit the growth of mouth bacteria. A large number of compounds, mostly basic dyes and salts of Metalloids have been tested with the result that *B. diphtheria* is among the bacteria most susceptible to the inhibiting action of these substances. It was discovered, however, that the salts of tellurium have a much less inhibiting action on the *B. diphtheria* group than on the staphylococci, streptococci and other pathogenic bacteria in the mouth.

Conradi and Troch added calcium bimalate and potassium tellurate to ordinary Loeffler's blood serum with good results. This has not been widely adopted apparently because the Conradi medium was first recommended as a color differentiating medium rather than an inhibiting one. The color differentiation is now believed to be of little help.

The bacteriological laboratory of the Indiana State Board of Health has made parallel inoculations on plain Loeffler's blood serum and on Loeffler's medium containing 1.5 c.c. of a 1% solution of potassium tellurate.

Our method of bacteriological examination for *B. diphtheria* is as follows: First the medium is inoculated with the swab, second the swab is smeared on a slide stained and examined immediately, third, in the evening all cultures made in the morning are examined, fourth all cultures made the previous day are examined in the morning and a final report made at that time.

In all 3,724 diagnostic diphtheria cultures were made on ordinary Loeffler's blood serum and on the same serum containing different amounts of potassium tellurate.

*Showing Results of the Use of Ordinary Loeffler's Blood Serum and the same Medium Containing 1.5 c. c. (1%) of Potassium Tellurate per 100 c. c.*

Medium.	Total.	Number Positive.	Percentage Positive.	Difference between Ordinary and Potassium Tellurate.	Summary of Ordinary and Potassium Tellurate.
Ordinary.....	2,934	896	30.5	1.7	.....
Potassium tellurate	2,877	925	32.2	.....	.....

Thus we see that the potassium tellurate medium gives 1.7% more positives than the ordinary.

To determine the maximum and minimum and optimal amounts of potassium tellurate to be added, one lot of media was made with 1.6 c.c. (1%) solution and another with 1.4 c.c. (1% sol.) per 100 c.c.

The first gave the following results:

Total number.....311	Number.	Percentage of Positive.	Difference between Ordinary and Potassium Tellurate.	Summary of Ordinary and Potassium Tellurate.
Medium Positive.				
Ordinary.....	70	22	2 %	.....
Potassium tellurate.....	61	20	.....	.....
Combined Positives.....	81	26	.....	4 %

The second gave the following results:

Total number ex. . . .246	Number.	Percentage of Positive.	Difference between Ordinary and Potassium Tellurate.	Summary of Ordinary and Potassium Tellurate.
Medium Positive.				
Ordinary Medium.....	61	24.7	1.2	.....
Potassium tellurate.....	58	23.5	.....	.....
Combined Positives.....	66	26.8	.....	2 %

We see that a slight excess of potassium tellurate above 1.5 c.c. affects the percentage of positives more than (2% decrease) does a slight decrease below (1.2% decrease in positives.) It would seem then that 1.5 c.c. (1% solution) per 100 c.c. of medium is the optimum amount of potassium tellurate. 1.5 c.c. per 100 c.c. gave 32.2 positives in 2,877 specimens examined; the ordinary positives were 30.5 in 2,934 specimens examined. 1.6 c.c. per 100 c.c. gave only 20% positives in 311 specimens examined; the ordinary positives were 22.7%. 1.4 c.c. per 100

c.c. gave 23.5% of positives in 246 specimens examined; the ordinary giving 24.7% positives.

The increased number of positives obtained with the potassium tellurate medium is not by any means a measure of the complete advantage of this medium. Smears made from the tellurate medium contain much fewer contaminating bacteria and decrease the time necessary to examine the microscopic slides almost half and lessens the work of getting pure cultures enormously.

For almost a year it has been impossible to obtain any potassium tellurate but we have been able to get a sufficient amount of potassium tellurite for our needs. Our results with the tellurite salt seem to be as good as with the tellurate.

We have been using Kinyoun's modification of Pounder's stain for nine months on all diphtheria specimens. This polar-body stain combined with the tellurite medium seems to be an almost ideal combination as the polar bodies are more numerous on this medium than on ordinary Loeffler's blood serum.

## GONORRHEA IN CHILDREN.

ADA E. SCHWEITZER, M. D.

This report includes children of thirteen years or under. Specimens for the detection of the gonococcus have been received from forty-seven children. The gonococcus was found in twenty-five specimens, more than half. A brief analysis of the positive of the positive cases follows:

Five specimens were from males and twenty from females with ages ranging as follows: Males, 11, 8, 8, 5 years, and an infant three weeks. Females, 13, 12, 11, 9, 9, 9, 9, 8, 8, 6, 5, 4, 4, 3, 3, and 2 years and an infant of 10 days. In the histories of three females the exact age was not given. The urogenital organs were infected in all save the female of two years and the male infant of three weeks, both of whom had ophthalmia.

The various sources of infection should be of interest both to the physician and to the social worker. In only thirteen cases was history of importance given.

Case 1. Male, age eleven. Sister had gonorrhea. Boy denied intercourse but his penis was swollen and there was a purulent urethral discharge. Pain was denied. Duration few weeks.

Case 2. Female, age eleven. Physician reported urthritis, accompanied by nocturnal incontinence.

Case 3. Female age thirteen. Red meatus. Slight purulent discharge. No subjective symptoms. Patient was a victim of rape.

Case 4. Male, age five. Urethral infection pronounced typical. Duration five days.

Case 5. Female, age nine. Victim of rape. In this case there was frequent voiding of acid urine, urinary distress, diarrhoea, high temperature and general sepsis. Vigorous treatment was employed. Duration of time of taking specimens three weeks.

Case 6. Female, age four. Parents astonished. Not suspected. Source not found. Duration six to eight days.

Case 7. Male, age eight. Urethral discharge. Duration one day.

Case 8. Female, age three. Suspicion of physician as to gonococcus infection confirmed by laboratory findings. Duration three months.

Case 9. Female, age three. Parents show no evidence of infection. Playmate suspected. Duration eighteen days.

Case 10. Female, age two. Eyes became sore one week before specimen was taken.

Case 11. Male, age three weeks. Discharge from the eyes contained gonococci. Duration six days.

Case 12. Female, age five. Mother had had gonorrhea eight weeks. Was considered source of infection. Duration in child three weeks.

Case 13. Male, age eight. Slept with sixteen year old hired girl who was infected. Attempted intercourse. Prepuce swollen. Duration ten days. Treatment, injections of copper sulphate.

The duration in the other cases varied from three days to four weeks. The extent of involvement of the organs was not given.

In the last seven years one hundred and twenty-six specimens containing gonococci have been received from children at least eighty-six percent being from females. Seventy percent of the specimens were taken from the vagina and thirteen percent from the urethra. Seventeen percent were eye infections occurring either at birth or shortly afterward.

History as to the origin of the infections was difficult to obtain. In those specified the mother was held responsible in ten cases, the father in seven and both parents in eleven cases. In two instances elder brothers were the infecting agents, in one each a sister, a niece and an aunt, in two cases visitors, in one each a



hired girl, a hired man and a boarder. Eight infections were due to contaminated towels, bedding, etc. Three children were infected by playmates, seven girls were victims of rape, one had an immoral history. In this total of fifty-seven histories the parents were responsible for the infection in twenty-eight cases or about fifty percent.

The Committee of the American Pediatric Society on Vaginitis in Childhood reported in 1915 that questionnaires were prepared for the consideration of the subject from seven different standpoints divided as follows:

1. Health Officers, Cities and States.
2. Physicians.
3. Pathologists and Bacteriologists.
4. Hospitals.
5. Childrens' Homes, Training schools and Asylums.
6. Gynecologists.
7. Social Service Departments in Hospitals and Visiting Nurse Societies.

To questionnaire No. 1, which was sent to Health Officers, eighty-six replies were received which are summarized as follows: "The Health Officers in thirty-two of the eighty-six States and cities apparently have more or less appreciation of the nature and characteristics of gonococcus vaginitis in childhood. Only nine of the eighty-six have instituted an investigation as to the prevalence of the disease, while twenty-eight of the eighty-six have made some official attempt to control its spread. Usually this action has taken the form of excluding from school those who were known to be suffering from vaginitis. In only six cities of the fifty-four heard from is 'gonorrhea' a reportable disease. It is highly probable that these laws were framed for the control of venereal disease as it occurs in adults and as these cities have no definite statistics to offer as to the number of cases of vaginitis occurring in children, it is also probable that few or no returns have been made.

The policy of permitting institutions and hospitals to make their own rules governing the admission and care of vaginitis cases seems to be in general favor. In sixteen out of sixty-four cities and States heard from however, hospitals are not permitted to discharge uncured cases to their homes."

Suggestions as to control included examination of all school children, reporting of the disease, strict isolation of infected child,

registration of cases and follow up by school nurse, education of parents and guardians.

In Indiana specimens are usually sent to the laboratory to confirm the physician's diagnosis. All too rarely are "follow up" specimens received after an apparent cure has been effected, to determine whether or not the infecting agent has been eliminated. Our experience in making examinations has shown that specimens from these patients should be examined at varying intervals for a period of no less than two years. Recurrence should be watched for during and after other infectious diseases and again at the age of puberty.

Because of the highly infectious nature of gonorrhea and of its destruction to the individual and to the race, every child so infected has a right to demand that his physician employ every available efficient means of diagnosis and cure. Within the limits of human skill he is entitled to a clean bill of health.

## MALARIA.

ADA E. SCHWEITZER, M. D.

Within the year beginning October 1, 1915, one hundred and sixty-nine specimens of blood were examined for the detection of malarial parasites. In twenty-two of these specimens the parasite was present, being of the tertian variety in nineteen instances and of the Estivo Autumnal in three instances.

Though not all the cases reported originated in Indiana, seven were said to have been infected at home. One infection occurred in Southwestern Missouri, one in Oklahoma, one in Arkansas, one in Tennessee and one in Georgia. In the other cases the region was not indicated.

Four persons had suffered from previous infections, the duration of the more recent illness varying from three days to eleven months.

In nineteen of the twenty-two cases a clinical diagnosis of malaria had been made by the physician. In seventeen cases reporting chills, specimens were taken with reference to chills as follows: Three before, one during and nine after the chill, the time in nine not being indicated.

Fifteen of the patients were males and seven females, whose ages ranged from four years to seventy years as follows: Males, two of four years, two of eight, four of ten, one each of thirteen, twenty, twenty-three, twenty-four, fifty-two and seventy years and one not given: Females: two of twelve years, one each of fourteen, nineteen, twenty-five, thirty-two and forty-two years.

The fact that sixty-eight percent of the infections occurred among males can hardly in these cases be attributed to the more frequent exposure due to the our door life of the male as more than fifty percent of these infections occurred in males of ten years or under.

The incidence of months by months was October two, November one, December one, May one, June two, July five, August two and September seven.

The geographical distribution is of interest. Whereas in the early history of Indiana malaria was almost universally prevalent yet in the year 1916, seventy-three percent of the positive specimens were sent from the Southern Sanitary Section of the State only twenty-three percent coming from the Northern two-thirds of the State. This is due in part to the better system of surface and sub-soil drainage in the north by which the swamp lands of former days have been converted into fertile, well tilled farms, and in the south to the geological configuration which upon the recession of the annual freshets in the Ohio valley favors the formation of pools of stagnant water. These became the breeding places of the anopheles mosquito.

The number of cases by counties follows: Adams one, Grant one, Marion two, Hamilton one, Vigo one, in the Northern and Central Sanitary Sections and in the Southern Sanitary Section, Dearborn one, Jennings one, Jefferson three, Dubois, five, Spencer four, Warrick one and Knox one.

From 1909 to 1916 inclusive one hundred and five blood specimens sent to the State Laboratory for examination have been found to contain malarial parasites, eighty-three being infections with the tertian parasites and seventeen with the Estivo Autumnal. The others could not be determined. Seventy-two specimens were sent from male patients and thirty-three from females. Fourteen patients were not over ten years of age, two years being the youngest. There were twenty-eight cases reported from eleven to twenty years and thirty-three from twenty-one to thirty. Over thirty there were twenty-four, the eldest a man of seventy. In six cases no age was given. Fifty-three patients were infected in Indiana and thirty-four in different Southern and Southwestern States. One was reported from Mexico and one from Central America. Others were not reported.

To the end that more reliable data as to the actual prevalence of malaria in Indiana may be secured it is urged that several specimens of blood taken according to the directions in the outfits furnished, be sent for examination from each case where malarial infection is suspected.

## TYPHOID EPIDEMICS.

With the report on every positive Widal specimen we are sending out this card:

### INDIANA STATE BOARD OF HEALTH.

*(Division of Pathology and Bacteriology.)*

Room 202, Gallup Block.

Day ..... Month ..... 1916.

Patient's name.....  
 Occupation.....  
 Exact address.....  
 Date of earliest symptoms.....  
 Milk used by patient.....  
 Name of dairy.....  
 Water used by patient..... Well..... City.....

#### (Back of card.)

Have there been any previous cases of typhoid, influenza, gastric catarrh, gastritis, diarrhoea or neurasthenia in the patient's family within the past year or two?

Has the patient been away from home within the last fifteen days? .....

If so, where? .....

How do you think your patient was infected with typhoid fever? .....

Physician's name.....

Address.....

City..... Town.....

(Enclosed you will find stamped envelope for returning this information.)

At first many of the reports gave well water or milk as the source of the infection. Further inquiry usually showed that the doctor had no data other than his own private opinion.

In a few instances the person sick was in a dairyman's family. Usually the case had not been reported to the local health officer and nothing had been done to prevent the spread of the infection through the milk. These cases were immediately reported to the local health officer and he was requested to make immediate investigation.

A great many cases were contact cases occurring in the same family.

The replies in some instances mention other previous cases so that an epidemic of typhoid came to our notice in this way.

This follow-up work has made the doctor investigate before making a careless reply that this or that was the source of infection.

The following is a tabulation of the cases:

TABLE 54.  
*Source of Typhoid Infections.*

No.	Water.			Milk.		Typhoid, Influenza, or Gastritis.	Absent from home within last fifteen days.	Source of Infection.	Source.
	Well.	City.	Spring.	Dairy.	Home.				
1	Yes	No	No	Yes	No	No	No	Dug well	Allen.
2	Yes	No	No	No	Yes	No	No		Benton.
3	No	Yes	No	Yes	No	No	Yes		Boone.
4	No	No	Yes			No	Yes	Water	Boone.
5	Yes	No	No	Yes		No	Yes	Well (driven)	Carroll.
6	Yes	No	No	Yes		No	No	?	Carroll.
7	Yes	No	No	Yes		No	No	?	Cass.
8	Yes	No	No	Yes		Yes	No	?	Cass.
9	Yes	No	No	Yes		No	No	?	Cass.
10	No	Yes	No	Yes	No	No	No	Milk ?	Cass.
11	Yes	No	No	Yes	No	No	No	Well or River	Cass.
12	Yes	No	No	Yes	No	No	Yes	Well	Cass.
13	Yes	Yes	Yes	Yes	No	No	Yes		Cass.
14	Yes	Yes	Yes	Yes	No	No	Yes	Food or water	Cass.
15	Yes	Yes	No	Yes	No	Yes	No	Well	Cass.
16	Yes	No	No	Yes	No	No	Yes	Well	Cass.
17					No	No	Yes		Clay.
18	Yes	No	No	Yes		No	Yes		Clinton.
19	Yes	No	No	Yes		No	Yes		Clinton.
20	Yes	No	No	Yes		Yes	No		Clinton.
21	Yes	No	No	No	Yes	No	Yes	Water	Clinton.
22						No	Yes		Dearborn.
23	Yes	No	No	No	Yes	No	Yes		Decatur.
24	Yes	No	No	No	Yes	No	Yes	Water	Dekalb.
25	Yes	No	No	No	Yes	No	No	?	Dekalb.
26						No	No		Delaware.
27	No	Yes	No	Yes	No	No	No		Delaware.
28	Yes	No	No	No	Yes	No	No		Delaware.
29	Yes	No	No	No	Yes	No	Yes		Delaware.
30	Yes	No	No	No	Yes	No	Yes		Delaware.
31	No	Yes	No	Yes	No	No	No		Delaware.
32	No	Yes	No	No	Yes	No	No		Delaware.
33	No	Yes	No	No	Yes	Yes	Yes		Delaware.
34	No	Yes	No	No	No	No	Yes		Elkhart.
35	Yes	No	No	Neighbors	No	No	Yes	Nursing	Elkhart.

TABLE 54—Continued

No.	Water.			Milk.		Typhoid, Influenza, or Gastritis.	Absent from home within last fifteen days.	Source of Infection.	Source.
	Well.	City.	Spring.	Dairy.	Home.				
36	Yes	No	No	No	Yes	No	No	Swimming	Elkhart.
37	Yes	No	No	Yes	No	No	Yes	? Water (City)	Elkhart.
38	No	Yes	No	Yes	No	No	No	? " "	Payette.
39	No	Yes	No	Yes	No	No	No	In South	Payette.
40	No	Yes	No	Yes	No	No	Yes	Dug well	Payette.
41	Yes	No	No	No	Yes	No	No	Open well	Payette.
42	Yes	No	No	Condensed	No	No	No	City water	Floyd.
43	Yes	Yes	No	No	No	No	No	" "	Fountain.
44	Yes	No	No	No	Yes	No	Yes	Well	Fountain.
45	No	Yes	No	No	Yes	No	No	Indianapolis water	Fountain.
46	Yes	No	No	No	Yes	Yes	No	Water-flies	Fulton.
47	No	Yes	Clatsop	No	Yes	No	No	Carrier	Gibson.
48	No	No	No	No	Yes	Influenza	Yes	Wells	Gibson.
49	Yes	No	No	Grocery	Yes	No	No	" "	Grant.
50	Yes	No	No	Grocery	No	No	Yes	Sewer overflow	Grant.
51	River	No	No	Condensed	No	No	Yes	River water	Grant.
52	No	Yes	No	Yes	No	No	No	Food	Grant.
53	No	Yes	No	Grocery	No	No	No	" "	Grant.
54	Yes	No	No	No	No	No	No	Water	Hamilton.
55	Yes	No	No	No	Yes	No	Yes	? " "	Hamilton.
56	Yes	No	No	No	Yes	No	No	Dug well	Hamilton.
57	Yes	No	No	No	Yes	No	No	Flies	Henricks.
58	Yes	No	No	No	Yes	No	No	Flies	Henricks.
59	Yes	No	No	No	Yes	No	No	Flies	Henricks.
60	Yes	No	No	No	No	No	No	Flies	Henricks.
61	Yes	No	No	No	Yes	No	Yes	Flies	Henricks.
62	Yes	No	No	No	No	No	No	? " "	Henry.
63	Yes	No	No	No	Yes	No	No	Well	Henry.
64	Yes	No	No	No	No	No	No	" "	Henry.
65	No	Yes	No	No	No	No	No	Toilet	Howard.
66	Yes	No	No	Yes	No	No	Academy	School	Howard.
67	Yes	No	No	No	School	No	Chicago	Water	Howard.
68	Yes	No	No	Condensed	No	No	Yes	Well	Howard.
69	Yes	No	No	Grocery	Yes	No	No	Toilet	Howard.
70	Yes	No	No	Yes	No	Yes	Yes	Well	Huntington.
71	Yes	No	No	Condensed	No	No	No	" "	Huntington.
72	Yes	No	No	Yes	No	No	No	? " "	Jackson.
73	Yes	No	No	Yes	No	No	No	? " "	Jackson.

74	Clstern.	No.	No.	No.	Yes	Yes	Yes	Yes	Yes	Nursing.	Jefferson.
75	Yes	No.	No.	No.	Yes	No.	No.	No.	Water.	Water.	Jennings.
76	Yes	No.	No.	No.	Yes	No.	No.	No.	Water.	Water.	Jennings.
77	Yes	No.	No.	No.	Yes	No.	No.	No.	House.	House.	Jennings.
78	Yes	No.	No.	No.	Yes	No.	No.	No.	Water.	Water.	Johnson.
79	Yes	No.	No.	No.	Yes	No.	No.	No.	Water.	Water.	Johnson.
80	Yes	No.	No.	No.	Yes	No.	No.	No.	Water.	Water.	Knox.
81	Yes	No.	No.	No.	Yes	No.	No.	No.	Water.	Water.	Knox.
82	Yes	No.	No.	No.	Yes	No.	No.	No.	Well.	Well.	Knox.
83	Yes	No.	No.	No.	Yes	No.	No.	No.	Well.	Well.	Knox.
84	Yes	No.	No.	No.	Yes	No.	No.	No.	Well-milk.	Well-milk.	Knox.
85	Yes	No.	No.	No.	Yes	No.	No.	No.	Water.	Water.	Knox.
86	Yes	No.	No.	No.	Yes	No.	No.	No.	Nursing.	Nursing.	Knox.
87	Yes	No.	No.	No.	Yes	No.	No.	No.	Open well.	Open well.	Kosciusko.
88	Yes	No.	No.	No.	Yes	No.	No.	No.	Open well.	Open well.	Kosciusko.
89	Yes	No.	No.	No.	Yes	No.	No.	No.	Well ?	Well ?	Kosciusko.
90	Yes	No.	No.	No.	Yes	No.	No.	No.	Well water.	Well water.	Lawrence.
91	Open well.	No.	No.	No.	Yes	No.	No.	No.	Well water.	Well water.	Lawrence.
92	No.	No.	No.	No.	Yes	No.	No.	No.	Nursing.	Nursing.	Madison.
93	No.	No.	No.	No.	Yes	No.	No.	No.	Swimming pool.	Swimming pool.	Madison.
94	No.	No.	No.	No.	Yes	No.	No.	No.	Water.	Water.	Madison.
95	Yes	No.	No.	No.	Yes	No.	No.	No.	Water.	Water.	Madison.
96	Yes	No.	No.	No.	Yes	No.	No.	No.	City water.	City water.	Madison.
97	Yes	No.	No.	No.	Yes	No.	No.	No.	Milk.	Milk.	Madison.
98	No.	No.	No.	No.	Yes	No.	No.	No.	?	?	Madison.
99	No.	No.	No.	No.	Yes	No.	No.	No.	?	?	Madison.
100	No.	No.	No.	No.	Yes	No.	No.	No.	?	?	Madison.
101	No.	No.	No.	No.	Yes	No.	No.	No.	?	?	Madison.
102	No.	No.	No.	No.	Yes	No.	No.	No.	?	?	Madison.
103	No.	No.	No.	No.	Yes	No.	No.	No.	?	?	Madison.
104	Yes	No.	No.	No.	Yes	No.	No.	No.	?	?	Madison.
105	Yes	Both.	Both.	Both.	Yes	No.	No.	No.	?	?	Madison.
106	Yes	Both.	Both.	Both.	Yes	No.	No.	No.	?	?	Madison.
107	Yes	Both.	Both.	Both.	Yes	No.	No.	No.	?	?	Madison.
108	Yes	Both.	Both.	Both.	Yes	No.	No.	No.	?	?	Madison.
109	Yes	Both.	Both.	Both.	Yes	No.	No.	No.	?	?	Madison.
110	No.	No.	No.	No.	Yes	No.	No.	No.	?	?	Madison.
111	No.	No.	No.	No.	Yes	No.	No.	No.	Home.	Home.	Madison.
112	No.	No.	No.	No.	Yes	No.	No.	No.	Water-milk.	Water-milk.	Madison.
113	Yes	No.	No.	No.	Yes	No.	No.	No.	?	?	Marion.
114	Yes	No.	No.	No.	Yes	No.	No.	No.	?	?	Marion.
115	Yes	No.	No.	No.	Yes	No.	No.	No.	?	?	Marion.
116	No.	No.	No.	No.	Yes	No.	No.	No.	Water-milk.	Water-milk.	Marion.
117	No.	No.	No.	No.	Yes	No.	No.	No.	?	?	Marion.
118	Yes	No.	No.	No.	Yes	No.	No.	No.	?	?	Marion.
119	Yes	No.	No.	No.	Yes	No.	No.	No.	?	?	Marion.
120	No.	No.	No.	No.	Yes	No.	No.	No.	?	?	Marion.
121	No.	No.	No.	No.	Yes	No.	No.	No.	Nursing.	Nursing.	Marion.

TABLE 54—Continued

No.	Water.				Milk.		Typhoid, Influenza, or Gastritis.	Absent from home within last fifteen days.	Source of Infection.	Source.
	Well.	City.	Spring.		Dairy.	Home.				
122	No.	Yes	No.		Polks		No.	No.	?	Marion.
123	No.									Marion.
124	No.	Yes					Yes	No.	City water	Marion.
125	No.	Yes	No.		Polks		No.	No.	City water	Marion.
126	No.	Yes	No.							Marion.
127	No.	Yes	No.		Polks		Yes Ep	No.	City water	Marion.
128	No.									Marion.
129	No.									Marion.
130	No.	Yes	No.		Yes		No.	No.	City water	Marion.
131	No.	Yes	No.				Yes Ep	No.	City water	Marion.
132	No.									Marion.
133	No.									Marion.
134	No.	Yes	No.		Yes		No.	No.	?	Marion.
135	No.	Yes	No.		Polks		Yes Ep	No.	?	Marion.
136	No.									Marion.
137	No.									Marion.
138	No.									Marion.
139	No.	Yes	No.		No.	No.	No.	No.	Swim. Fall Cr	Marion.
140	No.	Yes	No.		Yes		No.	Yes	Milk	Marion.
141	Yes	No.	No.		Yes	No.	Yes	No.	Toilet-well	Marion.
142	No.	Yes	No.		Yes	No.	No.	Yes	?	Marion.
143	No.	Yes	No.		Yes	No.	No.	No.	?	Marion.
144	No.	Yes	No.		Yes	No.	No.	No.	?	Marion.
145	Yes	No.	No.		Grocery	No.	No.	No.	Well	Marion.
146	No.	Yes	No.		Yes	No.	No.	Yes	?	Marion.
147	No.	Yes	No.		Polks	No.	No.	Yes	Country	Marion.
148	Yes	No.	No.		Yes	No.	No.	No.	Milk-water	Marion.
149	No.	Yes	No.		Yes	No.	No.	No.	?	Marion.
150	No.	Yes	No.		Yes	No.	No.	No.	Surroundings	Marion.
151	No.	Yes	No.			No.	No.	No.	?	Marion.
152	No.	Yes	No.		Yes	No.	No.	Yes	?	Marion.
153	Yes	No.	No.		Yes	No.	No.	No.	?	Marion.
154	Yes	Yes	No.		Polks	No.	No.	Yes	City water	Marion.
155	No.	Yes	No.		Polks		No.	No.	?	Marion.
156	No.	Yes	No.		Yes	No.	No.	Yes	?	Marion.
157	No.	Yes	No.		Grocery	No.	No.	Yes	?	Marion.
158	Yes	No.	No.		No.	Yes	No.	No.	Relatives	Marion.
159	Yes						No	Yes		Marshall.





TABLE 54—Continued

No.	Water.			Milk.		Typhoid, Influenza, or Gastritis.	Absent from home within last fifteen days	Source of Infection.	Source.
	Well.	City.	Spring.	Dairy.	Home.				
208	Yes	Yes	No			No	No	Open closets	Rush.
209	Yes	Yes	No			No	No	Open well	Rush.
210	Yes	Yes	No			No	No	?	Rush.
211	Yes	Yes	No	Yes	No	No	No	?	Rush.
212	No	Yes	No	Yes	No	Yes	Yes	?	St. Joseph.
213	Yes	Yes	No			No	No	?	St. Joseph.
214	Yes	Yes	No	No	Yes	No	Yes	?	St. Joseph.
215	Yes	No	No	No	Yes	No	Yes	?	Shelby.
216	Yes	No	No	Yes	No	No	Yes	Water	Shelby.
217	Yes	No	No	Yes	No	No	Yes	Brother	Shelby.
218	No	Yes	No			Yes	No	Cistern	Spencer.
219	Cistern.	No	No	No	Yes	No	No	Water	Spencer.
220	Yes	No	No	Yes	Yes	No	Yes	Water	Spencer.
221	No	Yes	No	No	No	No	Yes	Evansston	Spencer.
222	Cistern.	Yes	No	Yes	No	No	Yes	Drinking Fountain	Spencer.
223	Cistern.	Yes	No	Yes	No	No	Yes	Well water	Spencer.
224	Yes	No	No	Yes	No	No	No	Well water	Spencer.
225	Yes	Yes	No	Yes	No	No	No	Well water	Spencer.
226	Yes	No	No	No	Yes	No	No	?	St. Joseph.
227	Yes	No	No	No	Yes	No	No	?	Sullivan.
228	Yes	No	No	No	Yes	No	No	?	Sullivan.
229	Yes	No	No	Ice cream factory	No	No	No	Indianapolis	Sullivan.
230	No	Yes	No	Yes	No	No	No	?	Sullivan.
231	Yes	No	No	No	No	No	No	?	Sullivan.
232	Yes	No	No	No	Yes	No	No	Water-fruit	Sullivan.
233	Yes	No	No	No	Yes	No	No	Un. Home	Sullivan.
234	Yes	No	No	No	Yes	No	No	Water	Sullivan.
235	Yes	Yes	No	No	Yes	No	No	Water	Sullivan.
236	Yes	No	No	No	Yes	Influenza	No	Water	Sullivan.
237	Yes	No	No	No	Yes	No	No	?	Sullivan.
238	Yes	No	No	No	Yes	No	No	?	Sullivan.
239	No	Yes	No	Yes	No	Yes	No	Tippecanoe	Tippecanoe.
240	No	Yes	No	Yes	No	No	No	Tippecanoe	Tippecanoe.
241	No	Yes	No	Yes	No	No	No	Water-milk	Tippecanoe.
242	No	Yes	No	Yes	No	No	No	Well water	Tippecanoe.
243	No	Yes	No	Yes	No	No	No	Food-milk	Tippecanoe.
244	Yes	No	No	Yes	Yes	No	No	Raw Oysters	Tippecanoe.
245	No	Yes	No	No	Yes	No	Yes	Gosport	Tippecanoe.
246	No	Yes	No	No	No	No	Yes	Water	Tippecanoe.
	Open well.		No	Grocery	No	No	No	Well water	Tippecanoe.



TABLE 55.

*Suspected Source of Infection.*

Contact with typhoid patient.....	16 cases.
Well water.....	57 cases.
City water.....	23 cases.
Spring Water.....	4 cases.
Cistern water.....	4 cases.
Surface water.....	4 cases.
Lake or river water.....	5 cases.
Swimming pool.....	1 case.
Open toilets.....	3 cases.
Unsanitary conditions at home.....	4 cases.
Milk.....	5 cases.
Water or milk.....	6 cases.
Water or food.....	3 cases.
Food or milk.....	2 cases.
Food.....	2 cases.
Flies.....	5 cases.
Raw Oysters.....	1 case.
Dust Storm.....	1 case.
Not known.....	135 cases.

TABLE 56.

*Residence of Patients Fifteen Days Previous to Infection.*

Away from home.....	91 cases.
At home.....	165 cases.
Not known.....	25 cases.

TABLE 57.

*Source of Infection—Condensed.*

Well water.....	158 cases.
Cistern water.....	11 cases.
City water.....	99 cases.
Spring water.....	3 cases.
River water.....	1 case.
Surface water.....	3 cases.
Not known.....	27 cases.

TABLE 58.

*Milk Supply.*

Home.....	60 cases.
Neighbors.....	16 cases.
Dairy.....	94 cases.
Creamery.....	3 cases.
Grocery.....	12 cases.
Condensed.....	12 cases.
Non-users of milk.....	14 cases.
Not known.....	66 cases.

TABLE 59.

*Typhoid, Dysentery or Gastric Trouble in Family  
During Past Year.*

Typhoid in family.....	16 cases.
Gastritis.....	3 cases.
Influenza.....	5 cases.
Diarrhoea.....	1 case.
Typhoid infection suspected.....	16 cases.
Non-infected.....	214 cases.
Not known.....	27 cases.

## TYPHOID CARRIERS.

The Bureau of Preventable Diseases, New York City, has now a list of thirty-five chronic typhoid carriers. The list is a growing one. Search for the carrier in the case has become a very important part of epidemiological investigation in typhoid fever. There are the more or less obvious contact infections resulting from the precocious carrier, discharging the typhoid bacilli before he has himself developed the clinical symptoms, and others from cases of "walking typhoid," and from the so-called convalescent, or temporary carrier. The last mentioned is especially important and constitutes a common source of typhoid infection. In view of this, more care than ever before is being taken about the termination of typhoid fever cases. The patient recovers, strength returns, and, wholly innocent of the harm he may be doing, he mingles again with family and friends and observing no precautions, having no knowledge of the fact that he may be at least a temporary carrier of the infection. Private physicians are urged to instruct their patients on this point, to warn them that "precautions" must be kept up for a long time.

Besides all this, the investigator must never forget the chronic form in which the carrier state is prolonged for months and years,

with constant or intermittent excretion of the germs, and which appears to be dependent upon the bacillus having gained a strong foothold along the biliary tract, or elsewhere. This is the point we are stressing in our present method of investigation. Has any one in the family, or in the house, or among servants, or among friends among whom the patient was in contact during a month prior to the onset of his illness, ever had typhoid fever? When the answer is yes, we endeavor to ascertain if the individual in question is a carrier. Cultures are made from stools and urine, the Widal test is tried. Even where the laboratory reports are negative, a series of typhoid fever cases appearing at varying intervals in some family, institution or smaller community is strongly presumptive of the presence of a carrier. In the thirty-five cases referred to, however, the carrier state has been proven to exist by repeated positive fecal examinations.

Again, there are doubtless many persons who have had typhoid fever at some time in their lives without recognition of the nature of their illness. Any one of these may be a carrier. This indicates the value of routine Widal tests in search of carriers—though it is to be remembered that the Widal reaction is sometimes negative even in chronic carriers.

That such intensive study is well worth while may be seen from the following data:

Prior to 1915, we knew of some half dozen chronic typhoid carriers in the city, including "Typhoid Mary," who was "lost" for the time being. With her rediscovery in somewhat tragic circumstances, fresh impetus was given to the search for carriers. During 1915, five more were added to the list. Now, in the first half of 1916, twenty-two more have been discovered. In addition to search made incidental to the investigation of active cases, either sporadic or in outbreaks, the Bureau is also conducting a systematic search for typhoid carriers in the routine examination of professional food handlers. It happens that none of our carriers was revealed by this method. Nevertheless, every food handler giving a positive Widal and a history of typhoid fever is subjected to bacteriological examination.

An analysis of the thirty-five cases shows some points of interest. Six are inmates of one of the New York State Hospitals for the Insane located in New York City.

Of those in ordinary life, the ages run as follows: Under ten years, one; ten to twenty years, one; twenty to thirty years, seven; thirty to forty years, two; forty to fifty years, seven; fifty

to sixty years, seven; over sixty years, four. Nine are food handlers by occupation. This is a most serious consideration. They have been required to give up their accustomed means of livelihood. Of the nine, four were for a time confined in the Health Department Hospitals. Three have since been released on finding other occupations. Another is an old man who has since retired from business. Another, comparatively young, with a wife and children to support, has been compelled to give up a lucrative position as a confectioner and accept employment at unskilled mechanical work and requires charitable aid to supplement his income.

A woman keeping a little candy and ice cream store has, perforce, given up her occupation.

Another carrier kept a butcher shop and has for the time, given up work, at great financial sacrifice.

Another, apparently, recovered, is engaged in a certain class of food handling, under close supervision.

A young man, who was a teacher in an institution, has been compelled to resign his position.

Others are married women, supported by their husbands; or, if single or widowed, support themselves by suitable work. Two are homeless and wandering about. One of the carriers is a little boy at school.

This presents the economic side of the typhoid carrier question, and is suggestive of the gravity of the situation.

The supervision of a chronic carrier has already become an important part of our work. In a recent number of the Bulletin we print our "Rules for Typhoid Carriers." Each individual is visited from time to time. A journal is kept recording items of interest. From time to time stool specimens are examined.

In addition, a report is made to the United States Public Health Service and to the State Department of Public Health. This is looking toward the establishment of National and State registers of all chronic typhoid carriers.

A few of these chronic typhoid carriers are under treatment. This very important matter is a subject of constant study, with at least theoretical promise and encouragement.

#### TYPHOID FEVER AND EDUCATION.

Further reduction of typhoid fever in this city demands more thorough education of the general public as to the nature

of the infection and the means of preventing its spread. There are still entirely too many secondary cases of the disease. Physicians can do much toward reducing the incidence of typhoid fever by carefully explaining to the family in which they are treating a case of typhoid fever just what precautions should be taken.

Every case of typhoid fever reported to the Department of Health is promptly visited in order to obtain the necessary epidemiological data, and in order to make sure that precautions are being observed. At this visit a circular of information regarding typhoid fever is left with the family, the text of which circular is here reproduced, so that all physicians may see the kind of information, the department is attempting to spread among the people. It may pay our physician readers to read over this circular carefully, so that they may explain to their patients why these various regulations have been adopted.

#### TYPHOID FEVER.

Typhoid fever is handed from one person to another, a communicable disease. It is a germ disease. Matter from a typhoid person's bowels bearing the germs, get into another person's mouth and is swallowed. Then the germs grow and multiply in his bowels. They get into the blood and circulate all through the body. The poison from the germs is set free and the struggle between the patient's life and the germ life makes the sickness with all its fever and wasting of strength. If the germs win the patient dies. One out of every eight or ten people who get typhoid fever dies. Others are left in weakened condition. All are very sick from four to eight weeks or longer.

This card is given to you because typhoid fever is in your home or in the house where you live. It is very near you. What is said here is not said to frighten you, but we do want you to fear typhoid fever and be careful not to get it yourself or give it to other people. Think how alarmed we would be if cholera broke out in our family or house. Yet typhoid fever is a very deadly disease and it is very like cholera in the way its germs grow and multiply and discharge from bowels. In both diseases the germs travel from the bowels of one person to the mouth of another. They do this sometimes by the sick person's hands or things he has used, oftener by getting into our food or drink. Here, too, they may grow and multiply by millions, especially



in milk. They may get into our drinking water, or ice, our milk, cream, butter, buttermilk, ice cream, cheese, meats, desserts, fresh fruits and vegetables, oysters, muscles and clams.

#### HOW GERMS GET INTO OUR FOOD AND DRINK.

The discharges from the sick person or carrier, the one who harbors the germs, get into drinking water, the stream, reservoir or well, or in the milk by washing the cans in such water.

Or persons who work about our food and drink are harboring the germs in their bowels, and with their hands they infect and poison the food and drink.

Or the germs are carried by flies. The flies first light on and eat the discharges of the patient, then they light on our food or fall into the milk.

Or in some other way.

Typhoid is a very nasty disease. It is a shame to have it. A shame, because we do not need to have it. It can be prevented. We must get rid of it. For this, the first step is to learn how to prevent the disease. In New York City there are two or three thousand cases of typhoid fever every year and over three hundred people die of it. The germs cannot crawl or jump or fly. They must be carried to us in one way or another. Keep them off by cleanliness of our bodies, our homes, our food and drink. But if the germs do get into us in spite of all this, we can be ready for them by keeping strong and well and by being immunized. This last is a very wonderful new discovery. It is like vaccination in smallpox. If we get it in time it prevents the sickness, or at least makes it much lighter and shorter. Vaccination for typhoid does not hurt and it does no harm.

#### HOW TO KEEP FROM GETTING TYPHOID FEVER.

1. Keep yourself in good health. Do not use alcoholic drinks.
2. Keep your home and your body clean.
3. Always wash your hands before eating.
4. Drink only the best milk; if in doubt, boil it.
5. Drink only pure water; if in doubt, boil it.
6. Eat only pure, good food. Fresh cooked food is safest; heat kills the germs. (But the heat of tea and coffee is not often high enough to kill the germ in milk and cream.) Avoid salads, raw vegetables and raw oysters, unless you know they come from

a clean place. Wash ice when it comes and keep the ice box clean. Do not put ice in drinking water or on food. Deal only with good, clean food stores.

7. Don't eat at dirty restaurants.

8. Keep flies out of your rooms and away from your food.

9. Be careful when you go to the country: be sure of what you eat and do not drink from a strange spring or stream. Typhoid fever is especially a country disease. Be immunized before going on a vacation.

10. Never visit where there is a case of typhoid fever. Be careful about friends who have had typhoid fever: they may be "carriers."

11. Where there is an outbreak of typhoid fever, use only boiled water for drinking, and also boil the milk just before it is used. Eat no raw food of any kind. Fresh cooked, hot food is safest.

12. If typhoid fever is in your house or neighborhood, or you are exposed to the disease in any way, or are likely to be, have yourself immunized.

#### HOW TO KEEP FROM SPREADING TYPHOID FEVER.

##### A. WHEN THERE IS A CASE OF TYPHOID FEVER IN THE FAMILY

1. If you cannot do all that follows, the patient will be removed to the hospital. This is best for the patient, best for the family, best for the house and best for the public.

2. Every member of the patient's family and every boarder there, old and young, must be immunized.

3. Any member of the family or any boarder who works about food or drink must go away and live elsewhere until the patient is well, otherwise he or she must stop work. The Department of Health will enforce this rule.

4. The sick person must have a separate room and bed, and separate building. He must not leave this room or the house until the Department of Health has given consent.

5. There must be a nurse or attendant for the patient. This person must have nothing to do with food, or cooking, waiting on table or washing dishes for the rest of the family, and must keep away from the family ice box.

6. Flies must be kept out of the sick room, and the room kept spotlessly clean at all times.

7. Urine and stools from the patient must be treated with

quick lime, chloride of lime, soda, cresol or some other suitable agent, for one hour before emptying into the toilet. Your doctor or the Department of Health nurse will show how to do this. Disinfect water that has been used to wash the patient; also sputum, vomited matter and everything that comes from the patient. Wipe patient's nose and mouth with material that can afterwards be burned. All laundry from the sick room must be disinfected before it leaves that room. It is best to have it washed separately with thorough boiling. The patient must not use a toilet or privy that is used by others. Where there is no sewer-connected toilet on premises, special directions will be given by the Department of Health inspector.

8. The patient must have and use only his own dishes, glasses, spoons, etc. These must be kept in the sick room and washed there. Any food or drink left by the patient must be disinfected and burned, buried or emptied in the toilet, not put in the garbage pail.

9. The nurse or attendant must wash and disinfect her hands every time she touches the patient or the bed pan, bedding, etc., and before each time of leaving the room. Of course, the nurse must have been immunized.

10. The toilet into which the patient's discharges are emptied or which he may use, must be kept very clean and disinfected at all times. Other persons must not use the toilet used by the family having the typhoid case. Never empty any wash basin from the patient into the kitchen sink. If there is no sewer-connected basin in the sick room, use the toilet.

11. Visitors must not be allowed at all. Members of the family must keep out of the sick room.

12. When the patient recovers:

After ten days or two weeks the patient's urine and stools will be tested for germs by the Department of Health.

The patient cannot go back to work without a certificate from the Department of Health.

If the patient works about food or drink, such certificate will not be given unless he is found to be free from the germs of typhoid fever. Continue to be careful about the patient's urine and stools for a long time after recovery.

The sick room must be well cleaned, scrubbed, and aired before other people use it. Mattresses and pillows must be sponged with disinfectant and exposed to sun and air for three days at least. Blankets must be laundered.

Cleaning and renovation must also be done if the patient dies or is removed to the hospital.

#### B. BY CARRIERS OF THE DISEASE.

Some people when they get over typhoid fever, go on carrying the germs in their systems, and discharging them in their urine and especially in their stools. They do this for a longer or shorter time. Sometimes persons who seem never to have been sick with typhoid fever are still carriers. The germs are living in their systems without giving them the disease. All such people can spread typhoid fever, whether they have had the disease themselves or not. The fact that a person is a carrier is discovered by examining the stools and urine. All persons who have had typhoid fever recently are dangerous on this account and many go on carrying the germs for years. These are the chronic carriers. It has been estimated that in some communities one person in every thousand is a chronic carrier. Such persons must recognize that they are harboring the germs of a terrible disease which they must be very careful not to spread. They must be careful how they use the toilet and never fail to wash their hands afterwards. The toilet or privy they use must be kept clean and disinfected properly. It would be better if stools and urine too, in some cases, could be regularly disinfected as in an active case of typhoid. They must not touch food or drink to be used by others and should have separate dishes, towels, etc., for their exclusive use. Every person living in a house with a typhoid carrier must be immunized. A typhoid carrier who is a food handler must give up such work. The Department of Health requires this.

#### C. WHERE THE DISEASE IS UNRECOGNIZED.

In some cases of typhoid fever the sickness is so different from the usual form that the doctor does not know that it is typhoid, or the case is so mild that the patient hardly feels sick at all and does not call a doctor. In such cases the patient is very dangerous. They are scattering the germs about and nobody knows it. Besides this, in ordinary cases, the patient often starts discharging the germs with his stools before he begins to be really sick himself. When in doubt about a case being typhoid fever, start at once taking all precautions. Every case of continued fever, unless from known cause, should be regarded as typhoid

until definitely proven to be otherwise. The doctor should send specimens of blood and stools to be examined by the Department of Health.

#### D. REPORT ALL TYPHOID FEVER TO THE DEPARTMENT OF HEALTH.

This must always be done. Even when in doubt, the doctor should report the case as one of suspected typhoid fever. Ask the doctor if he has reported the case. Do not have an unreported case of typhoid fever in your family. It is a risk to yourself and to others.

#### E. BE IMMUNIZED.

Here is a sure safeguard against typhoid fever. The Department of Health gives the material free. The private physician can apply it or a doctor from the Department of Health will call, or persons can come to one of the Department's Borough offices. Be on the safe side and get immunized.

#### CLEAN HANDS.

Disease germs lead a hand-to-mouth existence. If the human race would learn to keep the unwashed hand away from the mouth many human diseases would be greatly diminished. We handle infectious matter more or less constantly, and we continually carry the hands to the mouth. If the hand has recently been in contact with infectious matter, the disease germs may in this way be introduced into the body. Many persons wet their fingers with saliva before counting money, turning the pages of a book, or performing similar acts. In this case the process is reversed, the infection being carried to the object handled, there to await carriage to the mouth by some other careless person. In view of these facts, the United States Public Health Service has formulated the following simple rules of personal hygiene, and recommends their adoption by every person in the United States.

Wash the hands immediately.

Before eating;

Before handling, preparing or serving foods;

After using the toilet;

After attending the sick; and

After handling anything dirty.

## UNIVERSAL TYPHOID VACCINATION.

No person is born with an immunity to typhoid fever. However, in large epidemics of typhoid due to contamination of the water or milk supply less than 10% of all persons drinking the water or milk develop a typical attack of typhoid. Many of the remaining 90% of persons are sick. Some with an influenza-like disease; some with a malaria-like disease formerly diagnosed as typho-malaria. Many children under three years of age are sick and die with the old fashioned summer complaint. Until blood examinations were made none of these atypical attacks of typhoid were attributed to their true cause, the typhoid bacillus.

If a city's water and milk are constantly contaminated with typhoid bacilli, typhoid fever is endemic and becomes epidemic during the summer and fall, the total number of cases remaining fairly constant from year to year.

At the present time a new condition is gradually becoming evident in cities having purified water and pasteurized milk. There is no better example than Indianapolis during the present summer. With a water supply free from contamination and a milk supply more largely pasteurized than ever before there was an unusually massive epidemic of typhoid. This epidemic began with isolated cases fairly well distributed over the entire city. Within three or four weeks following these isolated cases the disease became epidemic in the poorer and less hygienic parts of the city. These last cases have been variously ascribed to weeds, decaying garbage, open toilets and unscreened houses. All these things are not the true cause of epidemics, they are simply indicators that people who allow such conditions to exist either knowingly or ignorantly are guilty of bad hygienic habits and infect themselves and their associates.

One of the most marked characteristics of the present epidemic is the youthfulness of the victims. About 14 years ago the Indianapolis filtration plant was installed and milk was beginning to be pasteurized. Previous to 1904 most people were taking, from time to time, a few typhoid bacilli with water and milk. Many persons developed only slight intestinal disturbances and some fever with only slight indisposition lasting three or four weeks, a few other persons developed typical clinical cases of typhoid. The majority acquired an immunity after the mild attack others after a typical clinical typhoid.

Most persons born and reared in Indianapolis since 1904

have never been exposed to constantly infected water and milk supply and as a result are susceptible to infection with water or milk containing a few typhoid bacilli.

When Indianapolis people take their summer vacations in communities where typhoid is endemic and most of the natives immune, they often develop typhoid. Vacation typhoid is a very common occurrence in Indianapolis.

It was formerly believed that proper protection of water and milk against typhoid contamination would eliminate typhoid infections. If it were possible to detect and control typhoid bacilli carriers too, then it would be possible to prevent the majority of cases. However, man and his methods are fallible and there is liable to be sooner or latter some slip in the water purification or milk pasteurization; then our great army of urban susceptibles are lambs prepared for the slaughter.

What is the next step in typhoid prevention? The vaccination of every person who has not had typhoid is the correct solution. There is only one group of persons over which Boards of Health have the power to compel vaccination and that is the school children between six and fourteen years of age. Other persons can only be reached indirectly.

Time will indoubtably show that the Indianapolis City Board of Health made one of the most important advances in typhoid prevention when it compelled all school children to be vaccinated against typhoid fever. This method of preventing typhoid will be adopted everywhere when the epidemiology of typhoid is once thoroughly understood.

## SIX THOUSAND WIDAL TESTS.

ADA E. SCHWEITZER, M. D.

An exhaustive study is being made of the records of Widal tests covering a period of five years.

As not all the history cards were completely filled out it was necessary to employ for each tabulation only such statistics as were available on that particular subject. Hence the actual number of specimens varies in each table, as no record was kept of missing data.

A comparison of the physicians' diagnoses and the laboratory findings as to the Widal test disclosed the following: The physician's diagnosis agreed with the laboratory finding in 1,457 positive cases and 1,568 negative cases. The physician failed

to make a positive diagnosis in 723 instances where the Widal test was positive and made a positive diagnosis in 1,722 cases in which no agglutination occurred. As the agglutination may not occur until later, if at all, this latter discrepancy is relatively unimportant. In every case the laboratory finding was made independently of the physician's diagnosis.

A tabulation based on the sex of the patient in addition to the foregoing consideration is of some interest as indicating the distribution of actual typhoid fever by laboratory findings and of illness with typhoidal symptoms as shown by the physician's diagnosis.

Physician's Diagnosis	Laboratory Diagnosis	Number Males	Number Females	Total Number	Percent Males	Percent Females
Positive.....	Positive....	805	690	1,495	54	46
Negative.....	Positive....	350	366	716	49	51
Positive.....	Negative....	925	860	1,785	52	48
Negative.....	Negative....	880	715	1,595	55	45
Total.....		2,960	2,631	5,591	53	47

The physician diagnosed correctly 8% more male cases than female, in which both the physician's diagnosis and the laboratory findings are positive and 10% more in which both the physician's diagnosis and the laboratory findings are negative. He failed to make a diagnosis in 2% more of the female cases in which the physician's diagnosis is negative and the laboratory finding is positive and he made a positive diagnosis, a fair percentage of which were correct, in spite of the negative laboratory finding in 4% more males than females.

We may inquire whether females are more likely to have systemic disturbances the symptoms of which resemble those of the onset of typhoid fever, than are males.

A tabulation made of totals without reference to sex, is given below with the average of former totals and the percentage in each case.

Physician's Diagnosis.	Laboratory Findings.	Total 1st tabulation.	Total 2nd tabulation.	Average	Percent.
Positive.....	Positive....	1,495	1,451	1,476.0	27
Negative.....	Positive....	716	723	719.5	13
Positive.....	Negative....	1,785	1,722	1,753.5	31
Negative.....	Negative....	1,595	1,568	1,581.5	29
Total.....		5,591	5,470	5,530.5	100



Obviously the percentage in favor of the careful diagnostician is gratifying.

Parallel tests with the typhoid bacillus and para B. are made from June to October inclusive each year. A comparison is made of positive and negative findings of tests for typhoid alone and of tests with both organisms.

Typhoid Tests.	Para B. tests.	Number.	Percent.
Positive.....	.....	876	16
Negative.....	.....	1,572	29
Positive.....	Positive.....	442	8
Positive.....	Negative.....	830	16
Negative.....	Positive.....	75	2
Negative.....	Negative.....	1,597	29
Total.....	.....	5,392	100

The following table shows in detail the findings in cases in which a previous typhoid infection was reported. There was no agglutination with either the typhoid or the para B. organism in 301 or 68% of 449 cases. In 148 cases or 32% there was reaction to one or both organisms.

Typhoid Tests.	Para B. Tests.	Number.	Percent.
Positive.....	.....	118	25
Negative.....	.....	165	37
Positive.....	Positive.....	26	6
Positive.....	Negative.....	0	0
Negative.....	Positive.....	4	1
Negative.....	Negative.....	130	31
Total.....	.....	449	100

The number of days after the onset of the disease when the blood of the patient agglutinates the typhoid bacillus or the para B. organism or both is given below:

Tests.	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	Over 40	Total.	Per cent.
Typhoid Pos...	84	624	532	195	137	62	26	2	44	1,697	79
Para B. Pos...	3	18	17	3	4	.....	.....	.....	.....	45	2
Both Pos.....	8	151	147	44	29	18	8	.....	4	408	19
Totals.....	95	793	696	242	170	80	34	2	48	2,150	
Percent.....	4.4	36.8	32.3	11.2	7.9	3.7	1.5	0.1	2.2		100

As the date of onset was sometimes given at the time when the physician first saw the patient and not the actual onset of

the disease some latitude must be given these results especially in the early positives.

The fact that the larger number of specimens sent early in the disease for aid in diagnosis will account for the low percentage of positives in the later stages. When physicians awake to the importance of late Widal tests together with examination of discharges from the patient to determine whether he may still be a carrier of the organisms after his recovery the proportion of late positives will be materially increased.

The information concerning the subject of greatest importance in the prevention of typhoid fever, namely, the source of infection, is very meagre.

A number of cases have been investigated by the State Laboratory and the origin of infection definitely established. The results of these investigations can be found in the Annual Reports of the laboratory for previous years.

The only reported sources of infection as given by the physicians sending specimens for Widal tests have been classified. One case each is credited to vacation, carrier and privy vault, two cases to milk and three each to traveling and camping. Water is definitely indicated as a source of infection 34 times and is implied 10 times, three of the latter being given as Winona Lake and two the flood district.

Eight cases were due to relapse. The importance of direct or indirect contact which is really the original source of most typhoid infections is recognized by many physicians. Though 97 cases are reported as due to contact no more definite information was given.

Widal reactions occurred in 14 blood specimens from persons who had been vaccinated. After the foregoing information was charted, regular follow-up work to discover the origin of each case furnishing a positive Widal was instituted. Interesting tabulations of these results will be found in another part of the Annual Report.

The table shows the number of tests positive with either or both organisms, compared with the clinical diagnosis, and grouped by ages. It will be noted that a surprisingly large number of cases occur in the groups under ten years, which fact points to increasing accuracy in diagnosis as these positives were formerly diagnosed as intestinal trouble and very young children were considered immune to typhoid fever. The State has played an important part in education concerning the occurrence of infectious disease.

POSITIVE AGGLUTINATION TESTS WITH TYPHOID BACILLUS AND PARA B.  
COMPARED WITH CLINICAL DIAGNOSES.—BY AGE GROUPS

Ages.	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	66-70	71-75	76-80	81-85	86-90	No. age.	Total	Per cent.
Typhoid	83	178	184	297	281	209	122	120	98	61	32	21	17	15	4	6	1	2	49	1,780	37
Para B.	2	11	6	16	7	7	11	4	1	4	1	1	1	5	1	1	1	1	5	75	2
Both.	19	43	32	48	47	39	25	20	24	3	7	2	2	2	5	7	2	3	7	321	7
Lab. T.	104	232	222	361	335	255	158	144	123	68	40	23	22	15	4	6	1	2	61	2,176	45
Clin. D.	122	264	281	420	404	285	233	186	132	88	53	38	31	19	2	5	1	1	37	2,600	54
Total..	226	496	503	781	739	540	391	330	255	156	93	61	53	34	6	11	1	2	98	4,776	
Percent.	4.73	10.39	10.53	16.34	15.47	11.31	8.18	6.91	5.34	3.26	1.94	1.27	1.11	0.71	0.12	0.23	0.02	0.04	2.05		100

Lab. T.—Laboratory Total. Clin. D.—Clinical Diagnosis.

In view of the amount of work required for the compilation of these statistics this report can be considered only as preliminary to a detailed study of the facts disclosed. A more comprehensive study will be made and presented in a later report.

## DIFFERENTIAL BLOOD COUNTS.

ADA E. SCHWEITZER, M. D.

Few of the differential blood counts made during the year ending October 1, 1916, were of unusual interest.

Polymorphonuclear neutrophiles were found in percentage from five-tenths of one percent to ninety percent and lymphocytes from five to ninety-nine percent. In only one specimen was an eosinophilia noted at thirty-eight percent. Myelocytes were found in eight cases and nucleated erythrocytes in nine. In counting, the number of the latter is noted when making the differential leucocyte count and this number is compared with the total number of leucocytes.

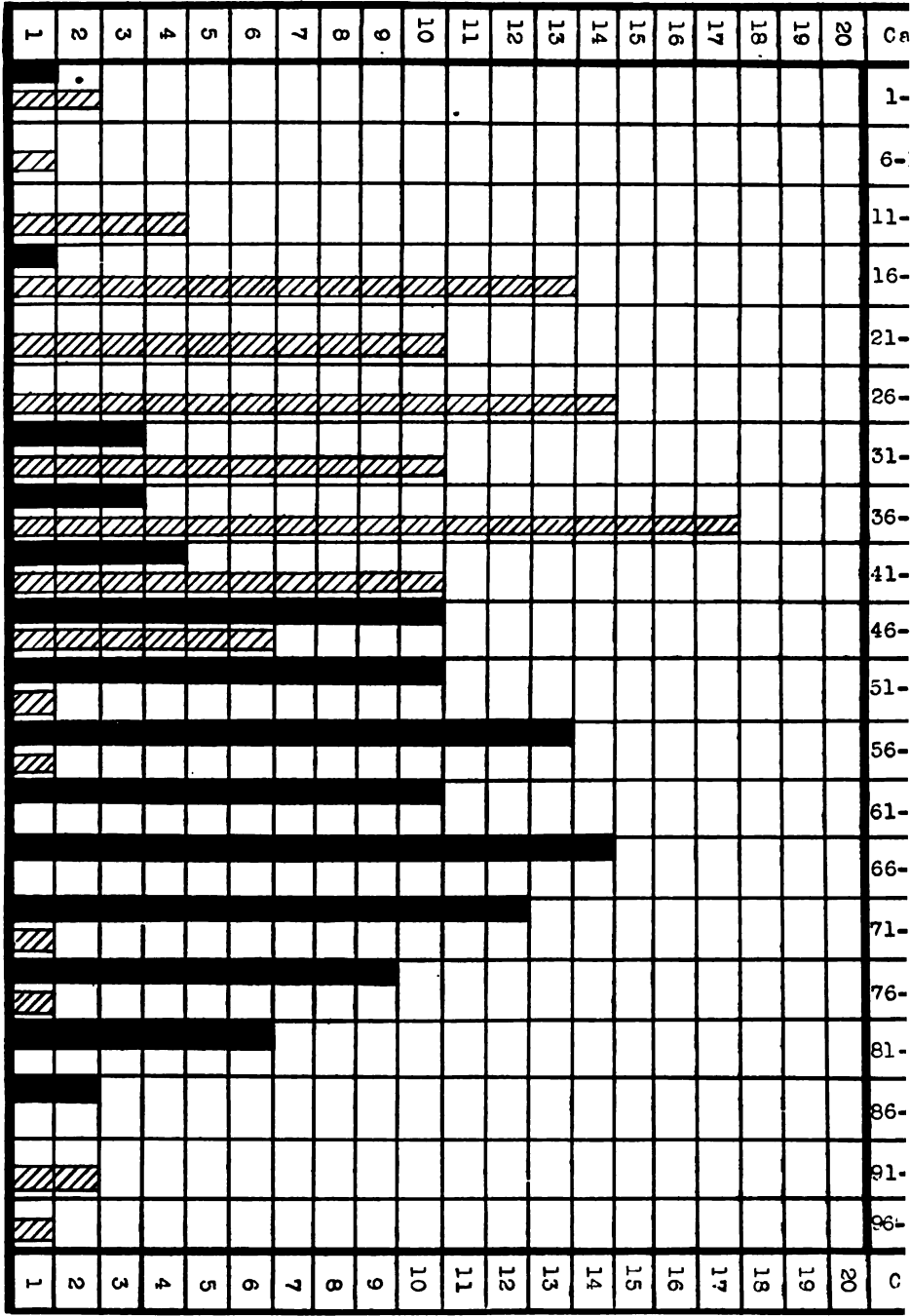
The accompanying chart indicates the relative average percentages of polymorphonuclear neutrophiles and of lymphocytes in one hundred specimens.



In several cases a diagnosis of pernicious anaemia was in no way confirmed by the blood picture while in other it seemed to be verified. One male, age sixty years, ill for six months, had bad teeth, severe pyorrhea, coated tongue, foetid breath, and poor appetite, finally had his teeth extracted. He continued to lose flesh was weak and anaemic. The blood showed a polymorphonuclear neutrophile percentage of eighty-five indicating a probable systemic invasion from the mouth infection.

A blood picture indicating an anaemia of pernicious type showed the usual changes in the size, shape and staining properties of the erythrocytes, the nucleated cells being in the ratio of one for each twenty-two of the leucocytes. The differential leucocyte count was, polymorphonuclear neutrophiles forty-five percent, lymphocytes forty-five percent, eosinophiles two percent, myelocytes two percent, transitional cells six percent. This patient, male age fifty-seven years, had a heart murmur, was weak and short of breath.

Another male age fifty-eight years suffered from general weakness and nausea. Temperature was from ninety-nine to one hundred and a half. There was eczema of the arms. The blood examination showed the usual erythrocytic picture with

TABLE SHOWING NUMBER OF CASES IN WHICH GIVEN PERCENTAGES  
POLYMORPHONUCLEAR NEUTROPHILES AND LYMPHOCYTES WERE FC



 — POLYMORPHONUCLEAR NEUTROPHILES  
 — LYMPHOCYTES

one nucleated erythrocyte to each twenty-six leucocytes. The differential leucocyte count was practically the normal average, polymorphonuclear neutrophiles seventy percent and lymphocytes twenty-eight percent.

Blood from a male age forty-six years showed one nucleated erythrocyte to seventeen leucocytes and much granular basophilic degeneration in addition to the poikilocytosis, anisocytosis, polychromatophilia and inferior staining properties. Here the leucocyte count showed a lymphocyte percentage of fifty-four with forty-one percent of polymorphonuclear neutrophiles.

A female infant of twenty months, rachitic with marked prolonged malnutrition, vomiting at times, alternate diarrhoea and constipation, extreme pallor, hemaglobin fifty percent, had a blood picture somewhat similar to the three preceding ones. There were poikilocytosis, inferior staining properties and nucleation of the erythrocytes with a differential count of polymorphonuclear neutrophiles forty-nine percent, lymphocytes forty-six percent, transitional cells three percent, eosinophiles one percent and large mononuclears one percent. The physician's diagnosis was "abdominal tuberculosis." In this case ample cause for the abnormal blood picture was indicated in the history. It is well known, however, that a blood picture which in an adult would point to a pathological condition, may in a child be due to physiological causes.

From a woman of sixty, two specimens were received, one on October 5, 1915, and the other May 13, 1916. The differential count in the former and latter are given below as October and May respectively:

	<i>October.</i>	<i>May.</i>
Polymorphonuclear neutrophiles . .	33%	35%
Lymphocytes . . . . .	60%	50%
Transitional cells . . . . .	2%	7%
Basophiles . . . . .	....	7%
Eosinophiles . . . . .	4%	1%
Large mononuclears . . . . .	1%	....

There was the usual erythrocyte picture. This patient died during the summer.

In very few of these severe anaemias can the underlying cause be determined from the history. Many times the diagnosis of anaemia or of pernicious anaemia is made, while in reality

this state of the blood may be due to some one of a variety of causes which would constitute the disease entity.

The blood of a female age sixty-seven with tumor of the spleen showed only polychromatophilia and low staining properties of the red cells and a polymorphonuclear neutrophilic count of forty percent, lymphocytes forty one percent, transitional cells six percent, eosinophiles three percent, basophiles one percent and a cell which seemed a form between a myelocyte and a large mononuclear in less than ten percent. The duration of the illness was two years.

A female age thirty-five, ill six weeks, had symptoms of collapse at the beginning of illness followed by dyspnoea and edema of legs and face, subnormal temperature, pulse one hundred and thirty, respirations twenty. The physical examination showed enlarged tonsils, tremor, nervousness, rapid heart and enlarged thyroid. The hemaglobin was estimated at sixty percent, the total leucocyte count of forty-six thousand per m.m. and a differential leucocyte count as follows: polymorphonuclear neutrophiles fifty-eight percent, lymphocytes twenty-one percent, eosinophiles one percent, basophiles one percent, transitional cells one percent and myelocytes sixteen percent. The physician's diagnosis was thyrotoxicosis.

The only eosinophillia was noted in a female age fifty-five, a per cent of thirty-eight. No history was given.

Specimens from three patients showed varying degrees of lymphocytosis, in two cases quite remarkable.

Case 1. Male, age not given, brother died of Hodgkins disease. Differential leucocyte count was as follows: polymorphonuclear neutrophiles thirty-seven percent, lymphocytes forty-eight percent, eosinophiles nine percent, transitional cells five percent, and basophiles one percent.

Case 2. Male, age sixty, was in failing health for some months, had markedly sclerotic vessels, high blood pressure, mitral blow, albumin in urine and some cough. The differential count showed polymorphonuclear neutrophiles sixteen percent, small lymphocytes seventy-one percent, large lymphocytes six percent, transitional cells six percent and eosinophiles one percent. The diagnosis was tuberculosis or lymphatic leukemia.

Case 3. Male, age twenty and a half years. Ill five weeks. A red and white blood count made October 7, 1915, showed red cells 4,800,000 about 160,000 whites. A differential white count at the laboratory showed a large and small lymphocyte count

of ninety-nine percent with a few polymorphonuclear neutrophils, transitional cells and eosinophiles. There was one nucleated red cell to every fifteen white cells.

A week later the differential count was practically the same while the leucocyte count revealed two hundred thousand white cells. This patient died. The original diagnosis was "Miliary tuberculosis or pernicious anaemia."

Cases two and three were under the care of pains-taking expert diagnosticians.

A careful study of the foregoing case reports emphasizes the fact that while a differential blood count may be of positive diagnostic aid in many cases, in many others it has at best only a negative value.

A single blood is of very little significance unless the blood picture is distinctly pathological.

Many attempts to make differential counts are valueless because of the manner in which the specimens are prepared. Some are still too thick, some of very uneven thinness, while in some specimens so much pressure is used in preparing the film that only a few distorted cells remain on the slide. A light touch and a steady hand with frequent practice in preparation of films will do much to eliminate these defects. Great improvement has already been shown and the value to the physician of the work done at the laboratory has proportionately increased.

### WINTER CHOLERA.

The following article was submitted to Drs. Vaughn, E. O. Jordan and A. J. McLaughlin with the request to show wherein the statement concerning "Winter Cholera" had been overstated, understated or misstated.

Dr. Osler says that if a physician knew all the varied forms of syphilis and tuberculosis he would have the fundamentals of medical diagnosis. Osler ought to have added typhoid fever to his list.

For the control of the spread of typhoid the number of cases reported by physicians is not of much assistance, since these cases are only a fraction of the actual number. Many of the unreported cases are called abdominal influenza, acute or chronic gastro-enteritis, intestinal bleeding, febrile neurasthenia and migraine. Mistakes in diagnosis of typhoid are especially apt to occur in epidemics due to water or milk.



In many cities with a public water supply there sometimes occur epidemics of gastro-enteritis followed in from ten to twenty days by epidemics of typhoid. In very few instances has the cause of the initial gastro-enteritis been recognized, until cases of typhoid appeared.

Many epidemics with thousands of cases of gastro-enteritis followed by hundreds of cases of typhoid have been reported. In every instance there was sewage pollution of the public water supply.

Other epidemics of gastro-enteritis have been reported without subsequent cases of typhoid and in these too, there was sewage contamination of the public water supply.

This is not difficult to understand when we realize that acute gastro-enteritis symptoms may be caused by the bacillus typhosis, bacillus paratyphosis B. and the bacillus dysenterica, all members of the colon-typhoid group.

In the German literature there are descriptions of many epidemics of gastro-enteritis due to the ingestion of B. paratyphosis B. the so-called acute gastro-enteritic form of this disease.

In cold weather bacillary dysentery appears in such a mild form that dysentery epidemics are called "winter diarrhoea." The cause of epidemics of gastro-enteritis in cities during the winter months should be recognized as due to typhoid, source the sewage pollution of the water. Every person in the district affected should be vaccinated against typhoid and competent engineers employed to find out how the sewage got into the city water.

The following reply was received from Dr. Vaughn:

"I think your statement is alright. I am sure that you have not overstated anything."

Dr. McLaughlin's reply was:

"I think your statement that symptoms of acute gastro-enteritis may be caused by the bacillus typhosis is at least misleading, as it is improbable that the bacillus typhosis manifests itself within a period shorter than seven days, whereas Winter Cholera usually appears within forty-eight hours after the ingestion of the sewage polluted water.

You also state that epidemics of gastro-enteritis should be recognized as due to typhoid fever, caused by sewage pollution of water. It might be a good thing if typhoid was considered the cause of these outbreaks, but as a matter of fact, the cause is probably from organisms included in the same dose of sewage which the water has received, typhoid infections usually occurring

from one to three weeks later, with an average of about two weeks."

Dr. E. O. Jordan said:

"I do not myself feel sure that we have any good evidence that the typhoid bacillus itself can cause the acute symptoms of gastro-enteritis. In the outbreaks described there seems to be always a chance of a mixed infection, that is; first, the acute attack due perhaps to *B. paratyphosus* B. or some other organism, and second, a typhoid infection superimposed on this and developing later. I should therefore be inclined to question a little the statement that these epidemics 'should be recognized as due to typhoid.'"

Since there seemed to be some difference of opinion between three equally good authorities the following letter was written to each:

"Dear Doctor:

I appreciate very much your letter of . . . . . date. If I may bother you again I should like to have another opinion from you. Will say in reply to your criticism of the sentence 'The cause of epidemics of gastro-enteritis in the city during the winter months should be recognized as due to typhoid' that this statement was made from the standpoint of prevention rather than from that of the exact cause. Personally I feel that an attack of acute gastro-enteritis might also be caused by some other member of the colon typhoid group.

How would you interpret the following quotation from *Arbeiten aus dem Kaiserlichen Gesundheitsamte*, Vol. 41. p. 23? 'Die Kommission konnte sich ungezählte Male davon überzeugen, dass Benzeichnungen wie Influenza, chronischer oder akuter Magendarmkatarrh, Darmblutung, fieberhafte Neutresthenia, Selbst Migräne und bei Kindern oft "Würmer" Umschreibungen für ganz echte und zweifellose Typhuserkrankungen waren.'

In many of our investigations of typhoid epidemics due to milk and water, the commonest diagnosis made by doctors of these cases of acute gastro-enteritis was abdominal influenza. We have observed that people who have recently had typhoid usually have a more severe attack of gastro-enteritis than those who have never had this disease and that many who later develop typhoid have very little if any acute attack of gastro-enteritis.

We thought that it was possible that the initial attack of acute gastro-enteritis among those who have recently had typhoid was an anaphylactic reaction."

The following replies came from the doctors who received this letter:

Dr. Vaughn:

"Your statement I think is fully justified. In addition to your quotation from the Royal Board of Health of Germany, I would refer you to the report upon typhoid fever made by Reed, Shakespeare and myself, published by the United States Government, in which we investigated many of the cases of acute gastric catarrh, intestinal hemorrhage, etc., and found them to be typhoid. I suppose you have this report. It is the "Report on Typhoid Fever in the American Army in 1898."

Dr. McLaughlin:

"I have your letter of...date in which you ask my interpretation of the extract from the work of the Imperial Health Officer. From the quotation which you present I should say that the idea which it was intended to convey is as follows: typhoid fever in a typical form is often diagnosed as influenza, chronic or acute gastro-enteritis, intestinal hemorrhage, feverish neurasthenia even migraine, and in children, worm disturbances. We know this to be true from experience in our own country."

Dr. Jordan:

"There is no doubt that, as you suggest typhoid fever is sometimes mistakenly diagnosed for influenza and for a great variety of other pathological conditions. The outbreaks of gastro-enteritis under consideration, however, are not followed in all instances by attacks of recognizable typhoid fever nor are the agglutination reactions and other evidences of typhoid fever present. The actual causes of the gastro-enteritis and of typhoid fever are in my opinion distinct, altho there is no doubt that polluted water may be the means of conveying both maladies. I have been for some years interested in the bacteriology of gastro-enteritis."

It should seem that winter cholera and other atypical typhoid like infections should receive considerable more attention of the laboratory men.

### THEORY OF ACIDOSIS.

The human body has an unusual ability to keep its physical and chemical characteristics uniform under the most varied conditions of environment and food supplies. One of these uniform characteristics is the chemical reaction of the blood

which always remains slightly alkaline to litmus or acid to phenothalein. However, the alkalinity of the blood differs some and it is only recently that we have been able to measure these variations, due to the development of physio-chemical methods of electrical measurement of acidity and alkalinity. This method is based on the theory that chemical substances in a watery solution dissociate one part of the molecule possessing a positive electrical charge, the other a negative one. These dissociation products are called ions. For illustration HCl dissociates, H carrying a positive charge and Cl carrying a negative one. Theoretically in a normal solution of HCl all of the molecules would be dissociated. A normal solution diluted 10 times would have 1/10 gram of H ions written  $N_{10}$  or  $N^1$ , 1 being the logarithm of 10. Water at 20°C. contains 1/10,000,000 of gram of dissociated hydrogen atoms written  $10^7$ . Water at this temperature also contains 1/10,000,000 grams of dissociated OH ions.

In terms of H and OH ions we define an acid solution as one containing a larger proportion of dissociated H ions than of OH ions. A neutral solution contains an equal proportion of both. In alkaline solution contains more OH ions than H ions.

The reaction of blood serum varies between  $H^7$  and  $H^8$ , however,  $H^7$  is only reached in the most severe acidosis and  $H^8$  only after the administration of alkalies.

Frequent determination of the H ions concentration of blood were not made until electrical determinations were correlated with an indicator or colometric method.

Phenothalein shows color change between  $H^8$  and  $H^{10}$ . Litmus shows a wide variation between  $H^6$  and  $H^7$ . Phenosulphothalein has a color change between  $H^{6.4}$  and  $H^{8.4}$  showing different colors at the different H ion concentrations. For this method it is necessary to have in addition to the indicator a series of standard solutions varying in H ion concentration from  $H^{6.4}$  to  $H^{8.4}$ .

A series of determinations for H ion concentrations of whole blood oxalated for normal persons showed the following:

- 7.4 cases 3.
- 7.45 cases 2.
- 7.5 cases 4.
- 7.55 cases 5.
- 7.66 cases 5.

Whole blood oxalated for abnormal cases shows:

- 7.4 cases 1.
- 7.45 cases 2.
- 7.5 cases 10.
- 7.55 cases 8.
- 7.6 cases 10.

In a small series of acidosis the H ion concentration was between 7.3 and 7.1. Thus we see that the H ion concentration varies very slightly in health and disease.

Metabolism of food under normal conditions produces a considerable quantity of acid both inorganic and organic. The sulphur of the protein molecule is converted into sulphuric acid and the phosphorus into phosphoric acid. Carbon dioxide is the end product of proteid, fats and carbohydrate katabolism.

CO<sub>2</sub> forms carbonic acid in the blood serum. A very small amount of lactic acid is formed under normal conditions.

The sulphuric acid formed is usually converted immediately into the sodium or potassium salt.

Phosphoric acid is converted either into the mono or disodium phosphates. 47% of carbonic acid is converted into either the carbonate or bicarbonate salt, 47% is in organic combination in the corpuscles and plasma, and 5% is in simple solution in the blood plasma. Thus we see that acids use up the bases in the blood and thus decrease the alkalinity of the blood by decreasing the OH ions.

Fortunately carbonic acid on account of its weak acidity may be easily liberated from chemical combination. Its easy conversion into gaseous CO<sub>2</sub> permits it to leave the body in a free state through not without considerable chemical mechanism whereby acid is provided in the blood plasma of the lung capillaries to combine with the alkali. When carbonic acid is freed from alkali it is converted into CO<sub>2</sub>. Thus we see that no difficulty exists in the excretion of the chief acid product of katabolism and the alkali used to neutralize it is saved for further neutralization of acids.

As CO<sub>2</sub> is a weak acid in its combination with sodium, with the corpuscle and with the blood plasma it can easily be replaced by stronger acids. This replacement lessens the CO<sub>2</sub> excretion of the lungs, both factors increasing the H ion concentration of the blood.

The acid replacement of the CO<sub>2</sub> in blood cells may go so far